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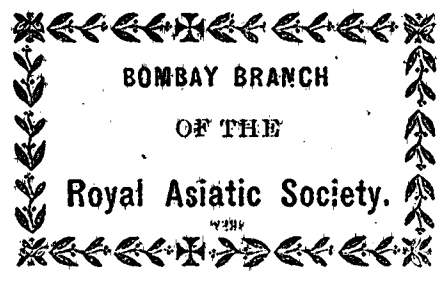

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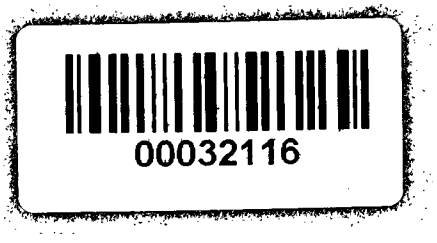

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THE Publisher is convinced that a carefully prepared and perfectly reliable history of the progress and triumphs of the American people, by able writers, on the best authority, got up without regard to expense, would appeal to the interests and enlist the pride of every citizen, whether native or adopted. The marvellous results are apparent to all; the means and mode of accomplishment are known to but a few. Such a work has been accomplished, and but one obstacle seems to offer in the way of an almost universal circulation. This exists in the prejudice, honestly but erroneously entertained by the public against selling by subscription. The truth is, that a really valuable work can only find remunerative sale by subscription. The preliminary outlay for such a work, covering writers, electrotyping, engravings, etc., is very large, and as the sale of the book is the only means of its being refunded, the price must depend upon the number sold. The publishing houses, with the aid of advertising and bookstores, could not expect to sell more than 2000 copies, which, at $5, would realize $10,000, about covering the original outlay, and involving them in loss to the extent of the expenses of manufacturing, advertising, selling, etc. On the other hand, we are confident that by subscription, 50,000 copies may be sold; a number which will reduce the original cost to 20 cents per copy instead of $5; at this rate, there is a margin beyond the cost of making, to cover agents' expenses, yield a living profit to the publisher, and at the same time allow of reducing the price to the buyer.

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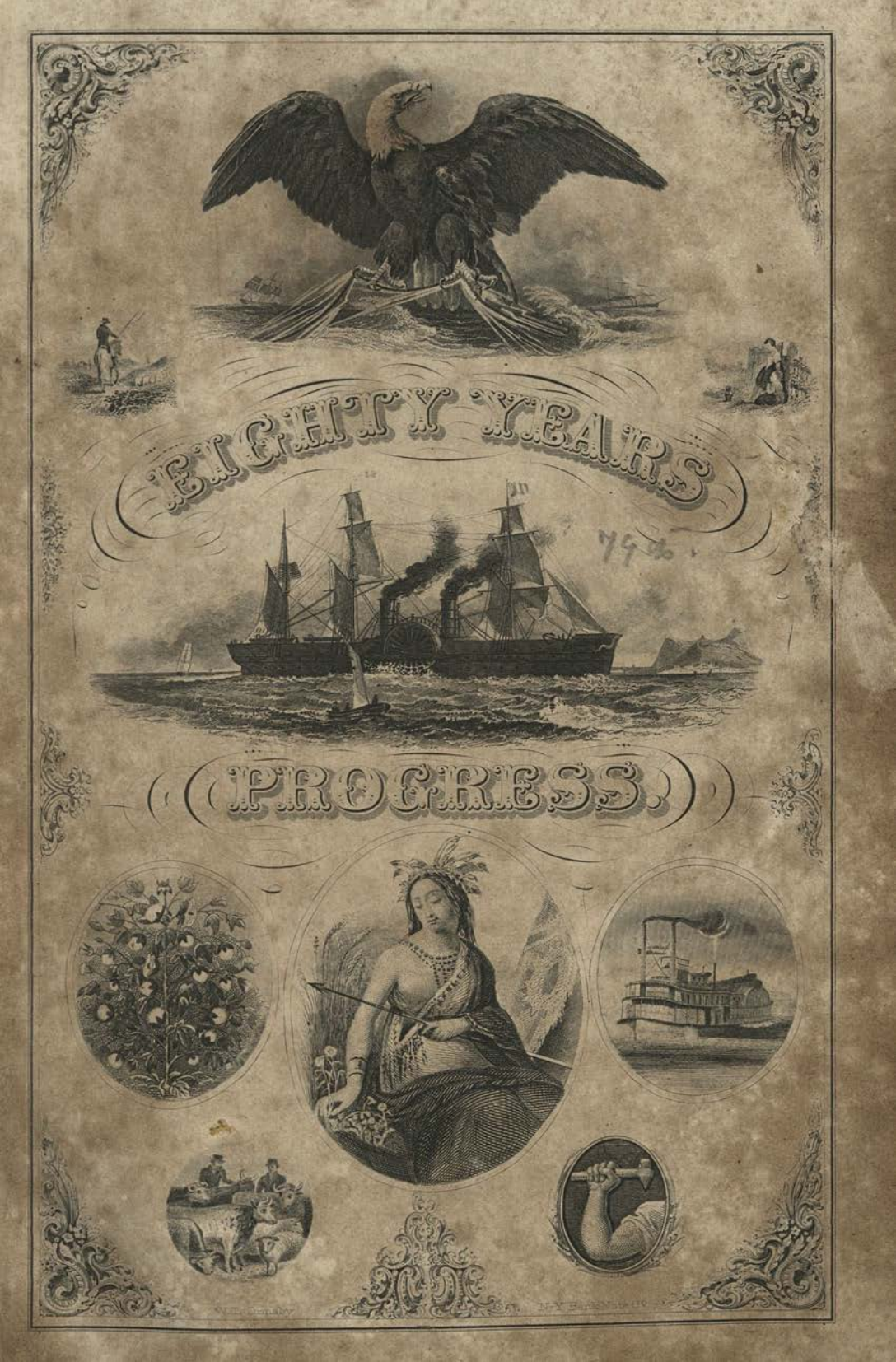
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Superintendent of Common Schools in Connecticut and Rhode Island; Chancellor of the State University of Wisconsin; and Editor of the "American Journal of Education."

The Publisher, being determined to insure the greatest possible accuracy for this work, submitted it for correction, after it had been electrotyped, to Mr. F. A. Teall, who has had the final revision of the manuscripts and proofs of the later volumes of Appleton's "New American Cyclopædia." Mr. Teall's long experience as a critical proof-reader, with the use of a large collection of the best authorities, enabled him to correct many errors and discrepancies, necessarily incidental to so extensive an undertaking, which had escaped previous revisers. While admitting the impossibility of securing absolute correctness in such a mass of facts and statistics, the Publisher confidently submits the work as a trustworthy and unique record of the wonderful progress of our country from its infancy to the present time.

PREFACE TO VOLS. I. AND II.

It has been said that history, as generally written, is but an account of the wars and contentions by which dynasties have striven for the mastery of nations. It imparts little or no information in respect to the social condition or material progress of the people themselves. It is true that the means of preserving such information have never before existed in the shape of those printing facilities which at this day place every variety of intelligence within the reach of the poorest classes. These facilities are themselves among the wonders that have attended the progress of the American people during the past eighty years. In that period a nation has been born, and grown to unexampled power and place among the nations of the earth.

Inasmuch, however, as that the nature, the institutions, and the administration of the American nation are different from all others, so must its history be in an entirely different style. If there are no regal intrigues to chronicle or military exploits to recount, there are more lasting triumphs in every useful science to record. If we have no Alexander, or Cæsar, or Bonaparte, or Wellington, to shine on the stormy pages of our history, we have such names as Franklin, Whitney, Morse, and a host of others, to shed a more beneficent lustre on the story of our rise. The means by which a few poor colonists have come to excel all nations in the arts of peace, and to astonish the people of Europe with their achievements through the development of their inventive genius, are true subjects for a history of the United States. Such a history is now for the first time presented to the American people. In its preparation no pains or expense has been spared in the view of making it perfectly reliable, and it is believed that a work has been produced which will be standard on the subject.

When the War of Independence was finished, the American people, free on their own soil, turned their quick intellect and undivided attention to the great object of improvement, material and mental, and they have wrought out results that have become not only the admiration but the exemplar of all nations. The great genius of the people manifested itself in the invention of labor-saving machines, because labor was scarce and dear. The steam engine was adopted,

improved, and applied to every branch of labor. It was applied to navigation, to locomotion, and to manufacturing in all its branches, great and small. Inventions were introduced in all possible branches of manufacturing by which labor was saved. It is probable that one man now produces as much by the aid of machines as one hundred did formerly. In other words, that inventive genius has increased manufacturing production a hundredfold. At the same time a vast continent has been settled; and here again has inventive genius supplied machinery as a substitute for farm laborers, and one man may, by their aid, harvest a large surplus above his family wants. These machines have become the models for Europe. This vigor of production has enabled the construction of as many miles of railroads as all Europe put together.

The telegraph has been invented for transmission of intelligence, and more miles of it used than in all Europe.

In ship-building, the American improvements have outstripped the boasted wooden walls of old England, and given the model to the world. Their active enterprise has won the foremost rank in foreign commerce, and covered the inland waters with more steam tonnage than all other nations possess.

The cities of America have sprung up with magic growth, and increased with marvellous vigor. There is no example in history where so many large cities have been built in a similar period.

If the material progress of the country has won the admiration of the world, no less so has its mental improvement. The common school system has rendered every family familiar, not only with education, but with that current literature which the astonishing American inventions in printing have spread in such profusion broadcast over the land. The number of institutions, religious, educational, benevolent, and humane, attest not only the high appreciation in which moral and mental culture is held, but the liberality with which they are fostered.

In producing a carefully written history of all these events, a vast amount of labor and research has been gone through to collate reliable statistical matter. Every effort has been used to place the results in a clear and attractive view, so as to make the reader master of every branch of the subject, and enable him to speak understandingly of his country's triumphs. To this end a great expense has been incurred for engravings illustrative of the various industries.

It is believed that the work now offered to the public is the most complete history of a nation's progress ever written.

CONTENTS OF VOLUME I.

PAGE

AGRICULTURE.

INTRODUCTORY REMARKS 19
First Settlers 19
James River Settlement, Virginia 19
Plymouth Colony 19
Stock of early Settlers 20
Introduction of Clover in England, 1633 20
Beef and Mutton, same date 20
Early Agricultural Implements 20
Customs of the Indians 21
Indians' method of clearing Forests 21
Indians instruct the English how to cultivate Corn 21
Indians' mode of storing Corn 21
First sight of Ships 22
Poor condition of Agriculture before the Revolution 22
Raisings and Huskings of early times 22
Early Settlers manufacture their Garments 22
Courtship and Marriage 23
Number of Newspapers 23
Killing Cows to house and milk them in Winter 23
Emigrating West meaning Western New York 24
ASSOCIATED AND LEGISLATIVE EFFORT 24
Letter of Washington to Sir John Sinclair 24
South Carolina Agricultural Society 25
Massachusetts do do 25
First Agricultural Exhibition in 1809 25
Effects of Agricultural Societies 26
FARM IMPLEMENTS 26
Jack at all Trades 27
Ploughs in Virginia in 1617 27
Thirty-seven Ploughs in Massachusetts in 1637 27

PAGE

Wooden Forks 27
Description of Ploughs 30
Modern Improvements in Ploughs 30
Ten Millions saved in Plowing 30
First Patent for Cast Iron Ploughs 31
Thomas Jefferson on Ploughs 31
Massachusetts Plough Manufactories 31
The Harrow, Cultivator, Grubbers, &c 32
Sickle and Cradle 32
Reapers and Mowers 33
Horse Rake 36
Malthus on Farming 36
Trial of American, English, and French Threshing Machines 36
RAISING OF STOCK 37
First Stock imported 37
Crossing of different Breeds of Cattle 38
Fodder for Cattle in Virginia 38
Cattle in Illinois in 1682 39
Stock Raising in England 39
Cows sell for $1200 40
Hereford and Devon Breeds 40
Methods of improving the Breeds of Cattle 41
Milch Cows 42
Kentucky, Ohio, Indiana and Illinois Cattle 47
18,378,907 head of Cattle in 1850 47
Animals slaughtered in 1850 worth $114,702,142 47
Importing Choice Stock 48
Ohio Company for importing, Capital $9,200 48
Short Horns, Jerseys, Ayrshires 49
Value of Cattle in Ohio in 1857, $11,315,560 50
Average number lbs. Butter per Cow in different states 51
Average number lbs. Cheese 51
Number of Cows per inhabitant 51
Stock Raising in Southern States 52

	PAGE
HORSES	52
Roads, Mails at four miles per hour	52
Speed desired in Horses	52
First Horses imported by Columbus	53
Wild Horses Descendants of Spanish Breeds	53
Demand for Fast Horses	53
The Morgan and Black Hawk	54
Horseback Riding in the South	54
Number of Horses in 1850, 4,336,719, not including Cities and Large Towns	54
SHEEP	59
First Imported Sheep	59
Wool Two Dollars per pound	59
The Dog Law	60
Tennessee Wool takes the Premium at the World's Fair	60
Great Britain produces 275,000,000 lbs. Wool annually	60
Wool of the South, West and North	63
SWINE AND PORK	63
First Swine imported	63
Improvement in Breeds of Swine	64
Native Hogs of the West	64
Swine of the South, West and North	65
Manner of killing Hogs	65
Pork Packing	66
Lard Oil	67
Quantity of Pork packed in Cincinnati for twenty years	67
Number of Hogs killed in Western States	67
PRODUCTS OF THE SOIL	68
Indian Corn	68
Indian Mythology	68
Early Exports of Corn	69
Exports of Corn in 1858–9	70
Corn produced in France and Russia	70
1,000,000,000 bushels Corn in 1855	70
Corn exported from 1851 to 1858	71
England imports $223,000,000 worth of Grain	71
WHEAT	72
Samples of Wheat sent to Holland in 1626	72
Damage to Wheat by Blast, Insects, &c.	73
Raising Wheat in New England	73
Exports of Wheat and Flour	74
French Settlements in the West	74
Soldiers of the Revolution settle in Illinois	75
Chicago Grain Depot	75
Grain Store-houses of Illinois Central Railroad	76
Agricultural Products Sixteen Hundred Millions annually	76
Agricultural Interests four-fifths of Taxes in New York State	77
Wheat produced South, West and North	77
Wheat in California	77
PRODUCTION OF OTHER GRAINS	77
Rye, Oats, Buckwheat	78
Buckwheat raised South, West and North	78
Clover and Grass seed	79
POTATOES	79
PEAS AND BEANS	79
GRASS AND HAY CROP	79
Timothy found by one Herd in a Swamp, taken to Maryland and Virginia by Timothy Hanson	80
Value of Hay Crop	80
Hay consumed per head of Cattle in different States	80
CULTURE OF FRUIT	81
First Apples in this Country	81
First Horticultural Society	81
The Nurseries of Western New York	82
Orchards in the South	82
Peaches in the South	82
Fruit in California	83
Wine in do	83
Imports of Fruits which may be grown in California	83
Thousand Dollars worth of Pears on one acre	84
Orchard Products of 1850	84
Fruit Books	84
Pears imported from France in 1851	84
CULTURE OF TOBACCO	85
Columbus presented with a Cigar	85
French Revenue from Tobacco	85
Tobacco at Forty Cents per pound	86
Exports of Tobacco	86
Tobacco raised South, West and North	87
Manufacture of Cigars	87
CULTURE OF HOPS	88
Hops introduced as early as 1828	88
Hops Raised South, West and North	89
FLAX AND HEMP	89
Quantity raised South, West and North	90
CULTURE OF SILK	90
BEE CULTURE	90
POULTRY	90
LUMBER BUSINESS	91
Great Variety of Trees	91
New Settlers	91
The Lumbermen in the Forest	92
Rafting Business	93
Lumbering in Maine	94
Kinds of Lumber	94
The way Lumber is sold	95
Lumbering at Green Bay	96
Chicago Lumber Market	96
AGRICULTURAL LITERATURE	97

PAGE

Essays by Jared Eliot 97
The American Farmer 97
Various Agricultural Papers 98
Agricultural Books 98
Agricultural Colleges 99
Chemistry in aid of Agriculture 99
Guano as a Fertilizer 100
Two Million Tons Guano from Chincha Islands 100
THE PROSPECT OF AGRICULTURE IN THE COUNTRY 101
Comparison with other Countries 101
Number of Farms in the United States 102
Remarks of Daniel Webster 102

COTTON CULTURE.

Capital and Labor 103
Early Exports of Produce 104
Labor in Comparison with Europe 105
Cotton great Export Article 106
Trade with Brazil 107
Cotton, Rice and Tobacco South 107
PRODUCTION AND PRICES OF COTTON 108
Machinery for Spinning Cotton 108
Steam Engine Important in Cotton Manufacturing 109
Early Manufactures in England 109
Cotton Trade of France 109
Comparative Consumption of Cotton 110
Cotton found by Columbus 110
Sea Island Cotton 111
Whitney Cotton Gin 111
Vexatious Law Suits 113
Increase of Cotton from 1820 to 1830 114
Prices of Cotton decline 114
Decline in Shipping Tonnage of Charleston .. 114
Rice Culture 115
Railroads in the South 115
Cotton Factories in the South 115
MONOPOLY OF THE MARKET—SLAVE LABOR 116
Limit of Sea Island Cotton 116
Cotton in various Countries 117
Paper read before the Society of Arts 118
Experiment with American Cotton in India . 118
Picking Cotton 119
Slave Labor 119
Humanity of the Master 119
Maine Liquor Law among Slaves 120
Ploughing in February 120
Cultivating Cotton 121
Distribution of Labor among Whites and Blacks 121
Slaves Marry and are given in Marriage 121
Cotton and Gold support high Tariff 122
Northern Furniture in Southern Houses 122
Northern Books do do ... 123

PAGE

SUGAR CULTIVATION AND CONSUMPTION.

Cane first introduced in Louisiania 127
Five kinds of Cane 127
Mode of Cultivating 128
Sugar Mills 128
Quantity Sugar produced per acre 129
Consumption of Sugar in the United States . 129
MAPLE SUGAR 130

COMMERCE OF THE UNITED STATES.

Population, Agriculture, Manufactures, assessed wealth 132
Early Settlers and Imperial Government 133
Colonists forbidden to Coin Money 133
Early Manufactures 133
The Colonies forbid Manufacturing 133
Bounty on Cloth 134
Surveyor General of His Majesty's Woods .. 134
West India and American Rum 135
Imports and Exports of 1770 136
Burdens of the Colonies 137
The Revolutionary War 137
Paper Currency 138
Trade with Great Britain from 1784 to 1790. 138
Insurrections in St. Domingo 139
Stephen Girard 139
Jay's Treaty 139
Table Imports and Exports from 1790 to 1807 140
Mr. Hamilton, Secretary of Treasury, Report 141
Table of Exports 141
American Manufactures 142
Table of Domestic Imports and Foreign Exports 142
The Embargo 143
National Debt at close of the War of 1812 .. 143
Increase of Population, Wealth, &c., from 1791 to 1820 144
CHANGED INTERESTS, MANUFACTURES, &C. 144
Table of Imports and Exports from 1821 to 1839 145
Capital employed in Cotton Manufacture in 1830 147
Table Imports and Exports from 1831 to 1840 147
Large Fire in New York in 1835 148
Two Hundred Millions sent West to start Banks 151
Three large American Houses in London 151
United States Bank 151
United States Bankrupt Law 152
Table of Imports and Exports from 1841 to 1850 153
Famine in Ireland 153
French Silks in Tricolors 154

PAGE

Gold Discovered at Captain Sutter's Fort.... 154
Production of California Gold $600,000,000. 155
Expenditures in California $1,945,900,000.. 155
Table Imports and Exports from 1851 to 1860 156
Table of Imports and Exports, value Manufactures and Agriculture, for periods of ten years from 1800 to 1860..... 157
Whole area of Great Britain, 53,760,000 acres 157
United States Government sells 110,000,000 acres in 20 years..... 157
Quantity of Provisions exported to Great Britain from 1849 to 1858..... 158
Quantity of Specific Articles exported from 1790 to 1859..... 158
The Mercantile Agency..... 159
Table showing the Growth of the United States..... 160
SHIPS, TONNAGE, NAVIGATION LAWS..... 161
Table showing the Number and Tonnage of Vessels built in American Colonies in 1771 162
Increase of Tonnage from 1789 to 1858..... 163
First Arrival of a Steamer from England.... 164
Names of various Lines of Steamers..... 164
List of Steamers lost, Ownership, Lives lost, value of Steamers..... 165
Country drained by the Ohio..... 166
Commerce of the Lakes..... 166
Opening Erie Canal..... 166
Paddle Wheels and Screw Steamers..... 167
Clipper Ships..... 167
Exports of United States, Great Britain and France, from 1800 to 1860..... 168
LAND SETTLEMENT, INTERNAL TRADE..... 169
Organization of Land Offices, &c..... 169
Prices of Lands..... 169
Land Sales in Ohio..... 170
Sale of Louisiana, Price $14,984,872..... 170
Land Speculation in the West..... 171
Canals in the West..... 172
Distances of the Four Great Lines of Railroads from East to West..... 173
Miles of Railroads built from 1828 to 1860 in the Eastern, Middle, Southern and Western States respectively..... 173
First Locomotive built in this Country..... 174
Annual Sales of Land by United States Government from 1821 to 1861..... 174
Population of Land States in 1830 and in 1860 175
Settlement of Buffalo..... 176
Oswego settled in 1820..... 176
Commerce of Cleveland..... 177
Detroit and Chicago..... 177
Table showing shipment of Grain from Chicago for twenty-three years..... 178

PAGE

Trade with Canada..... 179
RIVER CITIES, ATLANTIC CITIES..... 180
Pittsburg, Cincinnati, Louisville..... 180
Statistics of Pittsburg, Cincinnati, Louisville, and St. Louis..... 181
Statistics of New Orleans..... 182
Charleston, Baltimore..... 183
Philadelphia..... 184
Boston..... 185
NEW YORK, TELEGRAPH, GOLD..... 185
Comparative Exports of the Atlantic Cities. 187
Harnden Express..... 188
English Dead Stock of Goods in the American Market..... 189
Growth of New York..... 190
Table of Imports into Atlantic Cities and the United States..... 192
Cost of Shipping Gold from California to New York..... 193
Dealing of Stocks of modern origin..... 194
Table showing the whole amount of Stocks in the United States..... 195
Bulls and Bears..... 195
Ocean Navigation Lines, Telegraphs, Express Companies, Railroads, City Railroads and Canals centering in New York..... 196
Hotels in New York..... 197

BANKS IN THE UNITED STATES.

Bills of Credit, Government Issues, &c.... 198
Two Hundred Millions in Continental Bills in 1780..... 199
One Hundred Dollars for a Cake of Gingerbread..... 199
The United States Bank established..... 200
Winding up of the National Bank..... 201
STATE BANKS, SUFFOLK SYSTEM, &c..... 203
Progress of Banking in New York..... 204
Banks of the several States, with Capital, &c. 205
Banks of all the United States—Imports and Exports..... 209
Bank Loans in 1837 to 1860..... 210
Clearing House..... 211

UNITED STATES MINT.

ESTABLISHMENT OF THE MINT, STANDARD OF COIN, &c..... 212
Value of the Dollar and the Pound Sterling in Colonial Paper Money..... 213
Alloy of Gold Coin..... 214
United States Coinage..... 214
California Gold..... 215
Weight of Silver Coin..... 216

PAGE

Amount of New Silver Coin 216
Deposit of Domestic Gold at United States Mint and Branches 216
Amount of Specie in 1821 217

INSURANCE.

FIRE, MARINE, AND LIFE 219
Number and Capital of New York Companies 222
Capital, Premiums, and Risks of the Fire Companies of the United States 223
Marine Insurance 224
Life Insurance 225
Comparative Rates of Domestic Life Insurance 226

IMMIGRATION.

GENERAL MIGRATION 228
Colonies of the United States 228
Early Immigration 229
Naturalization Laws 230
Number of Immigrants for the last forty years, with their Birth-places 231
EUROPEAN MIGRATION—FRENCH AND GERMAN. 232
Decrease in Population of Ireland 235
Allowance on Passage 236
Saving part of the Passage Money 239
LANDING IN NEW YORK—FUTURE HOMES 240
Table of Immigrations 240
Location of Immigrants in the United States 242
Amount of Money received in the United States by Immigrants 243
Amount of Money remitted by Friends in aid of Immigration 243
Number of Natives arriving from abroad ... 244

SOCIAL AND DOMESTIC LIFE.

INTRODUCTION 245
DOMESTIC ARCHITECTURE 245
Description of Buildings 246
Houses South 247
Introduction of Anthracite Coal 248
Nott's Stoves 248
FURNITURE, FURNISHING GOODS, &c 249
China, Glass, Silver Forks, &c 251
FOOD, COOKING, &c 252
Cooking Stoves 253
DRESS 253
SOCIAL AND MENTAL CULTURE 259

BOOKS.

BOOK TRADE, PUBLISHING, &c 262
First Booksellers in America 263
American Bible Union 264

PAGE

Harper and Brothers, Appletons 264
Number of Book Publishers in the United States 265
Gift-Book Sales 266
Sale of Old Books 266
Subscription Sales 267
Circulation of Popular Works 267
School Book Trade 268
Reprints and American Books 269
BOOK BINDING 269
Books of Wood and Metal 272
Description of Binding 273
WRITERS OF AMERICA 274
THEOLOGIANS, STATESMEN, NOVELISTS, HISTORIANS 274
Early Founders of the Colony Good Writers 274
Works of James Madison 275
Judge Marshall, Story, Wheaton, John Quincy Adams, and others 276
Cooper, Hawthorn, Willis 279–280
Prescott and Bancroft 284
Lady Authors 285
PRINTING PRESS 286
Franklin Press 286
Hoe and Adams Presses 297
TYPES 298
Machines for Casting Types 298
Stereotype, Electrotype 300
NEWSPAPERS 301
City Papers 303
Number of Papers in the United States 307
TELEGRAPH—ORIGIN 308
Morse, House, and Hughes Machines 311
First Lines 313
Various Lines and Companies 313
Penalty for refusing to transmit Messages ... 314
Comparison between Telegraphs and Couriers 315

THE ARTS OF DESIGN IN AMERICA.

Horace Walpole 316
American Art begins with Benjamin West ... 317
Stuart, Robert Fulton 318
Sketches of the Lives of Prominent Painters 318 to 325
Sculptors ..... 326 to 328
Engraving 332
Dr. Anderson 332
Copper-Plate Engraving 333
American Bank Note Company 333
Descriptions of Engraving 334
Lithography, Daguerreotype, Academies of Art, &c 335

PAGE

EDUCATION AND EDUCATIONAL INSTITUTIONS.

DEVELOPMENT IN THE COLONIAL PERIOD 337
Early Efforts in Virginia..... 337
do do in New York..... 338
Early Efforts in Colonies of Massachusetts and Connecticut..... 338
Town Action in behalf of Schools..... 339
COLONIAL LEGISLATION AND ACTION IN THE ORDER OF THEIR SETTLEMENT..... 341
Virginia..... 341
Massachusetts..... 342
Rhode Island, Connecticut..... 344
New Hampshire..... 345
New York..... 346
Maryland..... 347
New Jersey, Pennsylvania..... 348
Delaware, North Carolina..... 349
South Carolina, Georgia..... 350
RESULTS AT THE CLOSE OF OUR COLONIAL HISTORY..... 350
REVOLUTIONARY AND TRANSITION PERIOD..... 351
Opinions and Efforts of Noah Webster, George Washington, John Adams, Thomas Jefferson..... 352
Opinions and Efforts of James Madison, John Quincy Adams, Benjamin Rush, John Jay, De Witt Clinton, Chancellor Kent, Daniel Webster..... 353
PROGRESS OF COMMON OR ELEMENTARY SCHOOLS 355
Letter from Noah Webster..... 355
do do Hemah Humphrey..... 356
do do Joseph T. Buckingham..... 359
do do Dr. Nott..... 362
Recollections of Peter Parley..... 363
The Homespun Era of Common Schools, by Horace Bushnell, D.D..... 369
Letter from William Darlington, M.D., LL.D. 370
Schools in Philadelphia..... 371
School Holiday in Georgia..... 373
Old Field School or Academy in Virginia... 377
Remarks..... 380

PAGE

What is Education?..... 383
Remarks on the Common School System in the United States..... 384
ACADEMIES, HIGH SCHOOLS, &c..... 388
Letter of Josiah Quincy..... 389
Address of Hon. Edward Everett..... 391
COLLEGES..... 392
PROFESSIONAL, SCIENTIFIC AND SPECIAL SCHOOLS 393
THEOLOGICAL SCHOOLS..... 393
LAW SCHOOLS..... 394
MEDICAL SCHOOLS..... 394
MILITARY AND NAVAL SCHOOLS..... 395
NORMAL SCHOOLS, &c..... 397
SCHOOLS OF SCIENCE FOR ENGINEERS, &c..... 400
The Lawrence School..... 401
SCHOOLS OF AGRICULTURE..... 402
COMMERCIAL SCHOOLS..... 403
SCHOOLS FOR MECHANICS..... 403
FINE ARTS—FEMALE EDUCATION..... 404
SCHOOL-HOUSES, APPARATUS, AND TEXT-BOOKS 406
The Horn-Book..... 413
New England Primer..... 414
Webster's Spelling Book..... 416
School Apparatus..... 422
LIBRARIES..... 423
Astor Library, Boston City Library..... 424
New York Mercantile Library..... 425
Table of Libraries in the United States..... 429
LYCEUMS, &c..... 432
INSTITUTIONS FOR THE INSTRUCTION OF DEAF AND DUMB..... 434
Rev. Thomas H. Gallaudet..... 435
INSTITUTIONS FOR THE BLIND..... 439
INSTITUTIONS FOR IDIOTS..... 440
INSTITUTIONS FOR EDUCATION OF ORPHANS.... 445
REFORMATORY INSTITUTIONS..... 446
Educational Statistics of the United States.. 451
Table of American Colleges..... 452
do Theological Schools..... 454
do Law Schools, Medical Schools..... 455
do Deaf and Dumb Institutions..... 456
do Blind Institutions..... 457

THE BEGINNING.

THE ABORIGINES.

EIGHTY YEARS' PROGRESS.

AGRICULTURE IN THE UNITED STATES.

I SUPPOSE it will be conceded that agriculture is the largest and most important interest of this country. It is my purpose to trace its progress from the time of the establishment of the first settlements upon these shores, but more especially during the last hundred years. If I mistake not, a sketch of its history will be found to possess much that is interesting, useful, and instructive.

It is not necessary to dwell upon the condition of America at the time when it was first settled by Europeans. The character and the objects of the men who proposed to establish a home here, are already familiar to the mind of every intelligent person. They left countries which were considerably advanced in civilization, and better cultivated, probably, than any others, at that time, on the globe, with the exception, possibly, of the Chinese empire. They came to settle down in circumstances wholly new to them, with a climate and soil unlike any which they had known before. They were to begin life anew, as it were, where their previous experience could afford them little or no aid, in a wilderness which was to be subdued by their own hands, in the midst of a thousand obstacles.

With the exception of some extensive tracts of prairie, chiefly confined to the great west, then wholly unknown and inaccessible, there was no large extent of territory which was not covered with the primeval forest, though here and there a partially cultivated opening occurred, which was, or had been, occupied by the Indians. They were, therefore, to start anew; to acquire, painfully and laboriously, that practical knowledge of their new situation, for the details of which no previous training could have fitted them. When we consider the hardships they had to encounter, especially that portion of them who had to endure, year after year, the rigor of a northern winter, we cannot wonder that their progress in farming was slow.

It is true, the different colonies, as they were originally established, had a somewhat different experience. The winters of Virginia were less severe than those of New England. The settlers on the James river suffered less, probably, than those further north, but all had to undergo many privations which are unknown to an old and improved country. All were surrounded by a howling wilderness, by savage men, by wild beasts ready to prey upon their live stock, or destroy their crops. In these respects the circumstances of the settlers in all parts of the country were nearly the same.

Let us look, for a moment, at the condition of things in the Plymouth colony, and we can gather therefrom a pretty correct idea of that in the other settlements. For many months after the arrival of the pilgrims at Plymouth, they had no beasts of burden, and when at last a few cows were brought over, they were poorly fed on the coarse wild grasses, and they often died from exposure and want of proper food, or fell a prey to the wolves or the Indians. Owing to the difficulties and expense of importation, the price was so high as to put them beyond the reach of many, even in moderate circumstances. In the colony of the Massachusetts Bay, a red calf soon came to

be cheaper than a black one, on account of the greater liability to be mistaken for a deer and killed by the wolves. When cows were so high as to sell, in 1636, at from twenty-five to thirty pounds sterling, and oxen at forty pounds a pair, a quart of new milk could be bought for a penny, and four eggs at the same price.

It is important to bear in mind that the cattle of that day, even in England, were not to be compared with the beautiful animals now to be seen there. The ox of that day was small, ill-shaped, and in every way inferior to the ox of the present time. The sheep has, since then, been improved to an equal, or even greater extent, both in form and size, and in the fineness and value of its wool. The draught-horse, so serviceable on the farm, long the pride of London, and now, to an almost equal extent, of most of our large cities, was not then known. It is difficult to appreciate fully the changes which the increased attention to agriculture has effected in our domestic animals, even within the last half century.

But when we consider that no attention whatever was paid to the culture of the grasses; that very few, if any, of the vegetables, now extensively cultivated as food for stock, were then introduced there; that the introduction of red clover into England did not take place till 1638; of sainfoin, not till 1651; of yellow clover, not till 1659; and of white, or Dutch clover, not till the year 1700; and that the form, size, and perfection of animals depend largely upon a full supply of food and good care when young, we shall cease to wonder, when we are told by the highest authority, that during the early part of the last century the average gross weight of the neat cattle brought for sale to the Smithfield market was not over three hundred and seventy pounds, and that of sheep, twenty-eight pounds; while the average weight of the former is now over eight hundred pounds, and of the latter, over eighty pounds.

It is a fact worthy of note in this connection, as it throws much light upon the early farming in this country, that the extensive and practical cultivation of the natural grasses originated here; or, at least, was introduced here long before it was into England. The necessities of our rigorous climate, indeed, compelled attention to this branch of husbandry very soon after the settlement, while the climate of England admitted a greater degree of reliance on the wild luxuriance of nature.

The cattle that first arrived, in 1624, were kept through the long winters on poor and miserable swale hay, or more frequently on the salt hay cut from the marshes, and death from starvation and exposure was no uncommon occurrence, the farmer sometimes losing his entire herd. The treatment of animals now as they were treated during the whole, or nearly the whole, of the first century of the colony, would subject the owner to prosecution for cruelty. This treatment was, in part, no doubt, owing to the poverty of the settlers, but more, probably, to the ideas and practices in which they had been early trained in a different climate.

Besides, on account of the high price of cattle at that period, and the risks to which they were exposed, it is not probable that the settlers selected the best specimens then to be found in England. There is no evidence that they were at all particular in this respect. Nor was the difficulty of procuring agricultural implements the least of the obstacles to the successful pursuit of farming. A few, no doubt, were brought over, from time to time, from the mother country, but all could not obtain them in this way; while the only metal to be had was made of bog ore, very brittle, and liable to break and put a stop to a day's work. Most were made of wood, and those imported were extremely rude in construction, being very heavy and unwieldy, and having comparatively little fitness for the purpose for which they were designed. The process of casting steel was not discovered till the middle of the last century, and then it was kept a secret in Sheffield for some years. The number and variety of implements have been infinitely increased, as we shall see, even within the last half century, to meet the wants of a more advanced state of agriculture, to which, indeed, these mechanical improvements have, in their turn, largely contributed.

Indian corn, pumpkins, squashes, potatoes, and tobacco, were plants which few of the early colonists had ever seen previous to their arrival here, but necessity taught them their value, and they were not slow in adopting the Indian methods of cultivating them. As the general cultivation among the colonies continued much the same for many years, with slight modifications, on the introduction of the European implements, it

may not be inappropriate to turn our attention, for a moment, to the agriculture of the natives.

Most of the hard work among the Indians, it is well known, fell to the lot of the women, with the assistance, sometimes, of the old men and little boys. Among their thankless tasks was that of farming, which they carried on to an extent quite remarkable, when we consider the rudeness of the implements with which they had to work, and the circumstances in which they were placed. They had no art of manufacturing metal, and, of course, could have no suitable contrivances for tilling the ground. Their cultivation was not so rude, however, as one would naturally suppose. They made a kind of hoe by tying the shoulder-blade of a moose, bear, or deer, to a stick or pole, and managed to do much of the work with that.

The land, when selected, was cleared by keeping up a fire around the foot of each tree till its bark was so burned that it would die. Then they planted their corn. When a tree fell, it was burned into pieces of such length that they could be rolled into a heap and burned to ashes. In this way, by degrees, a piece covered with wood was wholly cleared. An industrious woman could burn off as many dry, fallen logs in a day as a strong man could, at that time, cut with an axe in two or three. They used a stone axe, made much in the same manner as the hoe above described, to scrape the charred surface of the logs and hasten the burning. This mode of clearing was pretty common among the natives in different parts of the country. Sometimes the tree was first girdled with the axe and thus killed, allowed to become dry, and then burned by kindling a fire around it, as above described. Several of these stone axes, of different sizes, are now in my possession.

The Indians taught the settlers to select the finest ears of corn for seed, to plant it at a proper time, to weed it, and to hill it. They were accustomed to dig small holes four feet apart, with a clumsy instrument resembling the one described, which was made, not unfrequently, of a large clam-shell. Those living in the vicinity of the sea-shore put into each hole a horse-shoe crab or two, or a fish, upon which they dropped four, and sometimes six kernels of corn, and covered it with the implement with which they had dug the hole. The use of fish in the hill as a fertilizer was common, also, in the interior. Beans were planted with the corn after it had come up, and grew up supported by it.

Great attention was paid to the protection of their crops from weeds, while the corn was carefully guarded from destruction by insects and birds. To prevent loss by the latter, a small watch-house was erected in the midst of a field of corn, in which one of the family, often the eldest child, slept, and early in the morning rose to watch the birds. It was their universal custom to hill the corn, often from one to two feet high, for its support, and spots are often seen at the present day which were evidently cultivated by them. The colonists very generally imitated this custom, and it has been continued down to our own times in many parts of the country. The men planted and cured their tobacco, which was, ordinarily, the only plant they worked upon, the women managing all the rest.

This brief sketch of the farming of the Indians would not be complete without an allusion to their mode of storing grain for their winter supply. Large holes were dug in the earth, and the sides carefully lined with bark; this was also the work of the women. The corn and the beans, after being dried in the sun, or on rocks or flakes over a fire, were thrown into these holes, and then they were covered up level with the surface of the ground. They were thus preserved, if necessary, through the winter. These excavated barns were carefully concealed by the women from their lazy husbands and sons, lest they should discover and eat up their contents; yet, with all the care they could take, the hogs of the colonists often unhinged their barn-doors, and helped themselves to the golden treasure. History says that one of these Indian barns was discovered by the pilgrims at Truro, at a time when their store of provisions was so reduced as to contain but five kernels of corn to each individual.

They sometimes made additional provision for winter by means of large boxes of wicker-work, or bags or sacks of hemp, which were filled and kept in the wigwam for the more immediate wants of the family. They had, of course, little or no occasion to cut grass, though it grew in abundance along the marshes and the rivers, and in places which had been cleared for cultivation. It was of a coarse quality, and served the colo-

nists a good turn till they resorted to the cultivation of better.

We may imagine the surprise of the natives at the first sight of a plough. They could not understand so complicated a machine. They wanted to see it work; and when it tore up more ground in a day than they, with their clam-shells, could scrape up in a month, and they saw the colter and the share to be of iron, they told the ploughman if he was not the devil himself, he was very much like him.

The first sight of a ship, it is recorded, had excited their wonder even to a greater extent. To them it was a floating island; its masts were nothing but trees; its sails were clouds; its discharge of guns was thunder and lightning; but as soon as the thunder and lightning ceased, they pushed off their canoes to go and pick strawberries on the island!

This cursory glance at the early surroundings of the settlers of the country, will enable us the better to comprehend the difficulties in the way of making rapid progress. When poor and miserable cattle, poor and miserable implements, poor and miserable ideas of farming were the best of every thing they had, we can well imagine that little was done which was not forced upon them by the pressure of necessity. Their wants were too many, and required too vigorous exertions to provide what was indispensable, to admit of their spending time to experiment or seek out new principles to be applied to practical farming. As long as new lands could be had almost for the asking, it was not to be expected that they would till them very thoroughly. The soil was rich in mould—the accumulation of ages—and did not require very careful cultivation to secure an abundant return. But years of constant cropping exhausted its productiveness, when other lands were taken to subject to the same process. The farmer raised wheat year after year on the same land, till the soil became too poor, and then he planted corn; and when it would no longer grow corn, he sowed barley, or rye, and so on to beans.

Agriculture, so far as any real improvement was concerned, was, therefore, naturally enough, in a state of extreme depression for more than a century and a half after the establishment of colonies in various parts of the country. There were few intelligent cultivators previous to the Revolution, and there was no spirit of inquiry to give a charm to farm labor. It was performed as an evil which must be endured from stern necessity. Hard work was the order of the day. The forests were to be cleared, the buildings for shelter erected, the stone walls to be laid, and little time or inclination was left for the "humanities" of life.

The inhabitants of country towns, a hundred years ago, most of whom were, of course, engaged in tilling the soil, seldom visited even their neighboring towns, and many a farmer and farmer's son did not leave his own township from one year's end to another. The liberalizing influence of social intercourse was unknown and unappreciated, unless the village tavern and the frequent glass might be considered as forming an exception, while it afforded an opportunity, of which most men availed themselves, of forming new acquaintances and talking over the stale gossip of the neighborhood, or indulging in the ribald jest.

People for some miles around turned out to a "raising," as the erection of a frame building was termed, and a merry time it was, where the flip and the cider flowed like water. On a more limited scale, the "huskings" brought together, also, a pretty large neighborhood, when the same favorite drinks did much to enliven a long autumn evening, the whole being followed by a sumptuous repast of pumpkin pies, etc., continued into the small hours of the night. Then the "spinning bees" afforded a time for talk, and song, and riddle. Election day often, however, brought the people from a greater distance.

No butcher drove up to the farmer's door, with his ever fresh supply of meats, to give variety to the daily and homely fare; no baker with his jingling bells, travelled his rounds on stated days to relieve the monotony of the housewife's toil. Salted meats were the almost universal food from autumn till spring, and often from spring till autumn, though now and then a sheep or a lamb fell a victim to the necessity for change. No cottons, no calicoes, no ginghams, no linens, no flannels loaded the counters of the village store, to be had at a sixpence, or a ninepence, or a quarter a yard. The farmer, and the farmer's family, wore homespun, and the spinning-wheel and the huge timber loom were a part of nearly every household furniture, and their noise was rarely silenced. If linens were wanted, the flax was sown, and weeded, and pulled, and rotted, and broken, and swingled—for all

of which processes nearly a year was required before the fibre was ready for spinning, and bleaching on the grass, and making and wearing. If woollens, the sheep were sheared, and the wool dyed and got in readiness, and months were often required before it could be got into shape for wearing. Courtships were, therefore, of longer duration than many of them now-a-days, and two years was about as soon as the betrothed farmer's daughter could get ready to go to keeping house. Not unfrequently the flax had to be sown as the preliminary step, and to pass through all its forms of transition into cloth and garments. With our present facilities for manufacturing by machinery every conceivable variety of fabric, and that, too, in the shortest space of time, it is impossible to appreciate fully the state of things among all classes of society a century ago. Even the old processes of curing and preparing flax, and the variety of fabrics made from it, have undergone an entire change. Processes which then required many months to complete, are now wholly avoided by the more perfect and economical ones at present known and in constant use.

Owing to the imperfect provision for schools for the great body of the people, the boy was trained up to a narrow routine of labor, as his fathers had been for a century before. He often affected to despise all intelligent cultivation of the soil, and not only scrupulously followed the beaten track, but was intolerant of all innovation, simply because it was innovation. Very few of the rural population of that day saw a newspaper or a journal of any kind. There were not, probably, a dozen published in the whole country a century ago. There was not one in New England at the beginning of the last century, and but four in 1750, and these had an extremely small circulation beyond the limits of the metropolis.

Obstinate adherence to prejudice of any kind is now generally regarded as a mark of ignorance or stupidity. A century ago, the reverse was the case. In many a small country town a greater degree of intelligence—except on the part of the parson and the doctor—than was possessed by his neighbors, brought down upon the possessor the ridicule of the whole community. If he ventured to make experiments, to strike out new paths of practice and adopt new modes of culture; or if he did not plant just as many acres of corn as his fathers did, and that, too, in "the old of the moon;" if he did not sow just as much rye to the acre, use the same number of oxen to plough, and get in his crops on the same day; or if he did not hoe as many times as his father and his grandfather did—if, in fine, he did not wear the same kind of homespun dress and adopt the same religious views and prejudices, he was shunned in company by the old and young, and looked upon as a visionary. He knew nothing of a rotation of crops. The use and value of manures were little regarded. Even so late as within the memory of men still living, the barn was sometimes removed to get it out of the way of heaps of manure by which it was surrounded, because the owner would not go to the expense of removing these accumulations and put them upon his fields. The swine were generally allowed to run at large; the cattle were seldom or never housed at night during the summer and fall months; the potato patch often came up to the very door, and the litter of the yard seldom left much to admire in the general appearance of things about the barn or the house. Farmers thought it necessary to let their cattle run at large very late in the fall, and to stand exposed to the severest colds of a winter's day, "to toughen." It was the common opinion in the Virginia colony, that housing and milking cows in the winter would kill them. Orchards had been planted in many parts of the country, but the fruit was, as a general thing, of an inferior quality, and used chiefly for the purpose of making cider.

This is no picture drawn from the imagination. It is strictly and literally true of the farming of the country as a whole, a century ago, though it should be remarked that a slightly modified state of things existed in localities widely distant. But with some differences in detail, it will be found to be consonant with historical facts.

It would be extremely interesting, were it in our power, to support, by accurate statistics, this general view of the condition of farming during the last century, but, unfortunately, no reliable statistics were taken till the year 1790, and then, chiefly to ascertain the number of the population, with special reference to the distribution of the representation, or the political power of the several states. We are, therefore, wholly destitute of statistical information of the products of farming industry during the last century;

nor was it till the fourth decennial census, in 1820, that the population was divided according to industrial pursuits, so that we have no means of ascertaining even the number engaged in the occupation of farming. We only know that the general estimate of the population at the time of the Revolution, which fixed it at three millions, was considerably too high.

The occurrence of the Revolution, and the period immediately succeeding, very naturally brought men of all pursuits and from all parts of the country more frequently and closely together, and gave all classes, and farmers among the rest, a more general knowledge of what was passing in the world around them. Intercommunication became more easy and frequent, and had its influence upon the masses of the people. In the latter part of the last century many left the seaboard and removed to the interior to avoid the inconvenience arising from the difficulties between this and the mother country, and for other reasons; more attention began to be paid to agriculture. Emigration from the east began to set toward the so-called inexhaustible west, which at that time meant central or western New York.

Up to this point our survey of the condition of agriculture has necessarily been general. No one branch of farming had made any marked and perceptible progress. It has been said that a good strong man could have carried all the implements in use on the farm, except the cart and old clumsy harrow, upon his shoulders, fifty years ago, and we know that many a year occurred when grain, and even hay, had to be imported from England to keep the people and the cattle from starvation. Hereafter, it will be more convenient to trace the progress of the different branches of farm industry, and the means brought to bear in the development and improvement of agriculture, in a more distinct and separate manner, in order that we may get a clearer idea of the relative progress and influence of each. And first, of the origin and growth of

ASSOCIATED AND LEGISLATIVE EFFORT.

One of the characteristic features of the farming of the present day, is the extent to which associated effort is brought to bear upon all its details, by way of exhibitions, premiums, clubs for discussion, and the publication of reports for wide and gratuitous distribution. This enormous power of mind upon mind, by means of association or social intercourse, is of comparatively recent origin in this country. It can scarcely date back to the beginning of the present century, though the necessity of it had, even then, become impressed upon the minds of patriotic and public-spirited men.

On the 20th of July, 1794, Washington, then president of the United States, addressed a letter to Sir John Sinclair, in which he says: "It will be some time, I fear, before an agricultural society, with congressional aid, will be established in this country. We must walk, as other countries have, before we can run; smaller societies must prepare the way for greater; but, with the lights before us, I hope we shall not be so slow in maturation as older nations have been. An attempt, as you will perceive by the enclosed outlines of a plan, is making to establish a state society in Pennsylvania for agricultural improvements. If it succeeds, it will be a step in the ladder; at present, it is too much in embryo to decide upon the result." And again, in his annual address on the 7th December, 1796, when he met for the last time the two houses of Congress, he said: "It will not be doubted that, with reference to either individual or national welfare, agriculture is of primary importance. In proportion as nations advance in population, and other circumstances of maturity, this truth becomes more apparent, and renders the cultivation of the soil more and more an object of public patronage. Institutions for promoting it grow up, supported by the public purse; and to what object can it be dedicated with greater propriety? Among the means which have been employed to this end, none have been attended with greater success than the establishment of boards, composed of proper characters, charged with collecting and diffusing information, and enabled, by premiums and small pecuniary aids, to encourage and assist a spirit of discovery and improvement.

"This species of establishment contributes doubly to the increase of improvement, by stimulating to enterprise and experiment, and by drawing to a common centre the results, everywhere, of individual skill and observation, and spreading them thence over the whole nation. Experience, accordingly, has shown that they are very cheap instruments of immense national benefit."

Some few individuals, even before this date, had felt the necessity for some such ac-

tion as would lead to the development of the agricultural resources of the country, and as the result, the South Carolina Agricultural Society had been established in 1784, and still exists. The Philadelphia Society for the Improvement of Agriculture was formed in the same year, or the year after, followed by a similar association in New York in 1791, which was incorporated in 1793. The Massachusetts Society for Promoting Agriculture was incorporated in 1792, and soon after commenced the publication of a series of papers known as the *Agricultural Repository*, which, for sound good sense and judicious suggestion, challenges comparison with any similar series ever published. It should be stated, however, that the prime movers in the formation of these societies were not men actually engaged in farming, though many of them were owners of fine estates. The mass of farmers were not, as yet, fully prepared for this progressive effort, and all the agricultural teachings of educated and scientific men prove unavailing, unless the people themselves, the actual tillers of the soil, are prepared to receive and profit by their teachings. Many years elapsed after these early efforts were made, before the habit of reading became sufficiently common among the masses of practical farmers to justify the expectation that any general benefit would arise from the annual publication of the transactions of these societies.

There was little or no disposition in the community to examine the subject, and they failed to excite any spirit of emulation in the public mind. The improvements proposed fell almost dead upon the people, who rejected "book farming" as impertinent and useless, and knew as little of the chemistry of agriculture as of the problems of astronomy. A quarter of a century, however, effected some change, and in 1816 the Massachusetts society held its first exhibition, at Brighton, at which a list of premiums was offered, and a ploughing match instituted, not so much with the object of improving the plough as to try the strength and docility of the oxen. But the plough-maker happened to be there, and to have his eyes open; and since that day, an amount of knowledge has been brought to bear upon this implement sufficient to bring it very near perfection.

The first national society established with this specific object in view, is believed to have been the Columbian Agricultural Society for the Promotion of Rural and Domestic Economy, organized at a convention held in Georgetown, D. C., on the 28th November, 1809; and the first agricultural exhibition in this country was, probably, one held by that society in Georgetown, on the 10th of May, 1810, when large premiums were offered for the encouragement of sheep raising, etc. In the October following, in the same year, Elkanah Watson exhibited three merino sheep under the great elm tree in Pittsfield, Mass., which was the germ of the Berkshire County Agricultural Society, whose regular exhibitions began the year following, and are believed to have been the first county exhibitions ever instituted in this country. To show the feeling with regard to what was, at that time, considered an innovation, in a strictly farming community, the projector of that society encountered the opposition and ridicule of all classes of society, from the moment the proposition was made. It was viewed by many with contempt. Gradually, however, the feelings of the people were enlisted in its favor, premiums were offered and awarded, and a large concourse, from all parts of the county, increasing rapidly from year to year, showed clearly that something had reached the heart of the community.

But though this was the first county exhibition, so far as I am informed, it was not the first county society that was formed. The Kennebec Agricultural Society was instituted at Augusta in 1800 and incorporated in 1801, being the second society incorporated within the limits of Massachusetts, to which Maine, at that time, belonged. A voluntary association of the Middlesex husbandmen had also been formed in 1794, and incorporated in 1803, under the name of the Western Society of Middlesex Husbandmen.

These were some of the early efforts in this direction, and though they, like other similar attempts, met with some opposition on the part of the very class they were intended to benefit, the increasing intelligence of the people very soon enabled them to live it down. Now we have more than a thousand similar associations, all striving, by the offer of premiums, and by bringing together the best products of the farm and the garden, to encourage improvement and stimulate enterprise. Almost every state in the Union has its state society, and almost every county,

and, in some of the states, every county, has its county organization. And what is the result? It is well known that by far the largest and most valuable part of our practical knowledge is that which is got in our intercourse with our fellow men, with those who are engaged in the same pursuits and have the same interests as ourselves. The farmer has, therefore, gained, and is gaining a vast amount of information, much of which he can apply to advantage on his farm. Emerging from his naturally isolated position, he has become a more social being. More frequent contact with others, by way of competition, has stimulated mental activity. Contrast him now with his father on the same farm half a century ago, and see if there is not some improvement that can be traced to the social influences of the agricultural clubs and societies.

In addition to these societies, most, if not all of which are encouraged by the several states in a substantial manner, there exist, in some of the states, boards of agriculture, organized as departments of the state government, and having a general supervision of the societies, receiving their official returns, and publishing an abstract of the most valuable papers presented, for general distribution.

I do not think it is claiming too much for the agricultural societies throughout the country, to say that the general spirit of inquiry in relation to farm improvements, and much of the enterprise manifested by farmers of the present day, is due to their efforts. The most impartial judgment would, in fact, go much further than this, and say that a large proportion of the actual improvement that has been made in farm stock, farm implements, and farm products, may be traced, directly or indirectly, to the influence of the agricultural associations of the country.

To appreciate this influence it is only necessary to consider the immense facilities which a well-conducted exhibition gives, not only to the agricultural mechanic for making known the nature and value of his improvements, but to the farmer for becoming acquainted with them. Many an invention would have slumbered in oblivion, or enjoyed only a limited and local fame, had it not been for the multitudes brought together at the state, county, and town fairs, which, it will thus be seen, furnish a most admirable medium of communication, both to the mechanic and the farmer, making it for the interest of both to attend and avail themselves of the facilities offered them. Thus a great public interest is served, notwithstanding the individual mechanic or inventor may have his own interest chiefly at heart.

And what is true with regard to agricultural implements, is true to nearly an equal extent of every thing else brought for exhibition to the fairs of the societies. A farmer sees fruits that he knew nothing of, and could not obtain otherwise. He knows who presented them, secures the same for his own farm, and within five years can present as good samples himself. He sees animals brought to a degree of perfection of which he had never, perhaps, conceived. Thought is excited. He asks himself whether they are more profitable than his own; procures them, perhaps, and thus an improved stock is disseminated over the country to take the place of that which is inferior, but which costs the individual nearly or quite as much to keep as that more valuable and profitable.

I need not enlarge upon this point. Enough has been said, I think, to show that the modern system of associated effort is a most decided progressive movement; but let us trace out more in detail some of its results. And first, in the multiplication and improvement of

FARM IMPLEMENTS.

There is, perhaps, no branch of farm economy in which the progress of improvement has been so apparent and unquestionable, as that made in the implements of agriculture during the last half century. It might almost be said that progress in agriculture itself may be measured by an increased demand for new and better implements, as the advance in civilization is shown by a greater demand for comforts and luxuries by the people.

There was a time, as we have seen, in the history of American farming, when labor was cheap, when strong limbs and the power of endurance were the requisites chiefly sought for in the hired man, and when his labor was paid for as so much brute, physical force. Intelligent labor, skill, and thought found higher rewards in other callings, and the practical farmer was thought to be sufficiently well informed if he was able to hold plough, to mow, to sow, and to reap. The labor—the physical force necessary to carry on the operations of the farm—could be obtained very easily in those days,

and it was natural that farmers should be satisfied with the limited variety of implements then in use. The isolated position in which they were placed, their limited opportunities for travel and observation, the difficulties, in fact, of getting about among people engaged in the same pursuits, all helped to strengthen prejudice and foster a repugnance to try new and unused implements, or to strike out into new fields of experiments. Besides these obstacles in the way of improvement, the progress then made in the various branches of mechanics was extremely limited, and the adoption of new and improved implements must follow, of course, in the wake of mechanical invention. The few rude and imperfect implements in use at an early day were, for the most part, of home manufacture, or made by the neighboring blacksmith, who had a thousand other things to make at the same time. There was little idea of a division of labor. Jack at all trades was good at none.

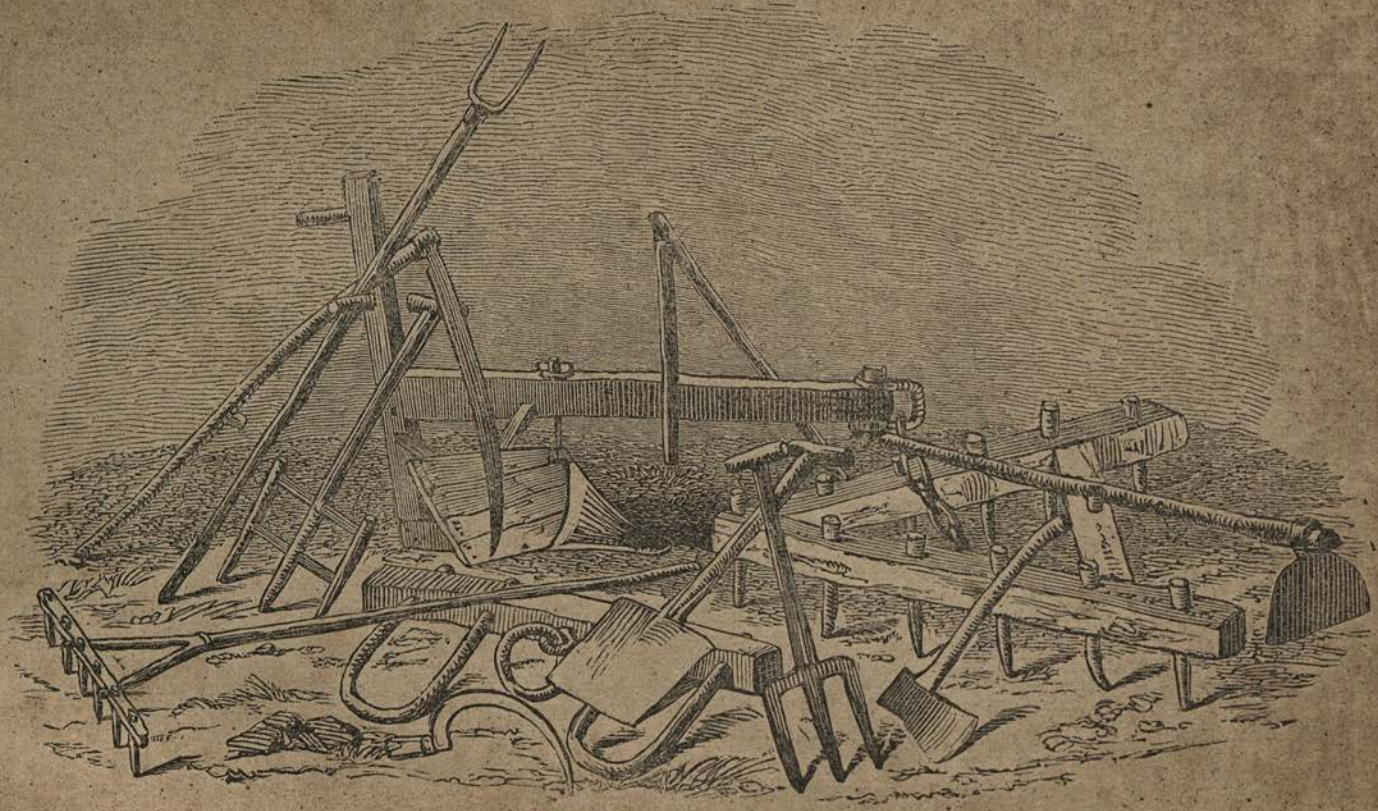
As early as 1617, some ploughs were set to work in the Virginia plantation, but in that year the governor complained to the company that the colony "did suffer for want of skilful husbandmen, and means to set their ploughs on work; having as good ground as any man can desire, and about forty bulls and oxen, but they wanted men to bring them to labor, and iron for the ploughs, and harness for the cattle. Some thirty or forty acres we had sown with one *plough*, but it stood so long on the ground before it was reaped, it was most shaken, and the rest spoiled with the cattle and rats in the barn." This complaint had some effect, for, in 1648, a cotemporary resident says: "We have now going near upon a hundred and fifty ploughs," and they were drawn by oxen.

It is recorded that in 1637 there were but thirty-seven ploughs in the colony of Massachusetts Bay. Twelve years after the landing of the pilgrims, the farmers about Boston had no ploughs, and were compelled to break up the bushes and prepare for cultivation with their hands, and with rude and clumsy hoes or mattocks. It was the custom, in that part of the country, even to a much later period, for any one owning a plough to go about and do the ploughing for the inhabitants over a considerable extent of territory. A town often paid a bounty to any one who would buy and keep a plough in repair for the purpose of going about to work in this way. The massive old wooden plough required a strong and well-fed team to move it through the soil, a heavy, muscular man to press it into the ground, another to hold, and another to drive. We may judge, therefore, of the economy of the work it performed. What was true of the early period of the settlement, was true, to nearly an equal extent, for a hundred and fifty years, so far as the implements and the processes of farming are concerned. All these last were traditional, handed down from sire to son, and adhered to in the strictest manner. The implements consisted almost wholly of the plough, the spade, a clumsy wooden fork, and now and then a harrow. I have in my possession two of these wooden forks, made, and in use, at least a hundred and fifty years ago, in the Massachusetts colony. They were regarded as curious for their antiquity in the youth of the grandfather of the donor, who died some years ago, upward of ninety years of age. That would date them back nearly two centuries, perhaps.

At this time, the ploughs used among the French settlers in Illinois were made of wood, with a small point of iron tied upon the wood with straps of raw-hide. The beams rested on an axle and small wooden wheels, the whole drawn by oxen yoked to the ploughs by the horns, by means of a straight yoke attached by raw leather straps, with a pole extended from the yoke back to the axle. The plough was very large and clumsy, and no small one was used by them to plough among the corn till after the war of 1812. The carts they used had not a particle of iron about them.

During the last century, the old "Carey plough" was more extensively used in the Atlantic states than any other pattern, though the particular form of this instrument varied almost as much as the number of small manufacturers or blacksmiths who made it. The Carey plough had a clumsy wrought iron share, a land-side and standard made of wood, a wooden mould-board, often plated over, in a rough manner, with pieces of old saw-plates, tin, or sheet iron. The handles were upright, and were held by two pins; a powerful man was required to hold it, and double the strength of team now commonly used in doing the same kind of work.

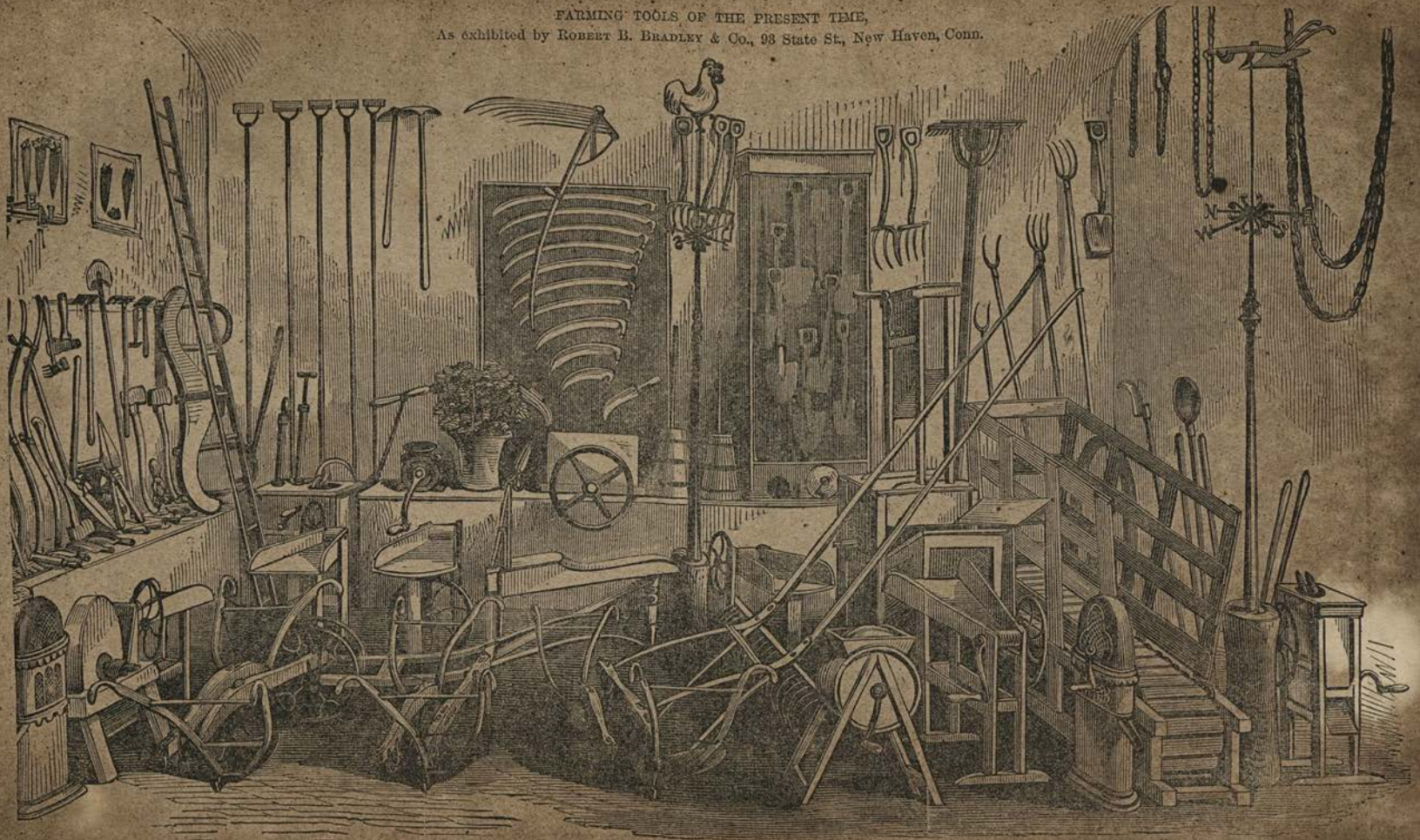
The "bar-side plough," or the "bull plough," was also used to some extent. A flat bar formed the land-side, and a big



FARMING TOOLS IN USE IN 1790.

FARMING TOOLS OF THE PRESENT TIME,

As exhibited by Robert B. Bradley & Co., 93 State St., New Haven, Conn.



clump of iron, shaped a little like the half of a lance head, served as a point, into the upper part of which a kind of colter was fastened. The mould-board was wooden, and fitted to the irons in the most bungling manner. The action might be illustrated by holding a sharp-pointed shovel back up, and thrusting it through the ground.

In the southern states, the "shovel plough" was in general use down to a very recent date, and is, indeed, to some extent, at the present day. It was made of a rough-hewn stick for a beam, with another stick framed in, upon the end of which a piece of iron, shaped somewhat like a shovel, sharp-pointed, was fastened. The two rough handles were nailed or pinned on to the sides of the beam, having a wooden prop, with a draft iron, or piece of bark in a raw-hide loop, at the forward end of the beam.

Generally speaking, it might be said that the ploughs used in this country a century ago, were not very unlike those used by the old Romans before the Christian era, and by some of the people of southern Europe even at the present day. They were not unfrequently nor inaptly termed the "hog plough," on account, probably, of their propensity to root into and out of the ground. And in describing the plough, an adequate idea of all other kinds of farm implements—the variety, as we have seen, being extremely small—is clearly enough conveyed. These old-fashioned wooden ploughs continued, with little or no improvement, till after the beginning of the present century.

By far the greater part of the draught of the plough, or strength of team required, is due to friction in the soil. The cutting, raising, and turning over of the turf add comparatively little to the draught, though, it is true, the friction itself is somewhat increased by the weight of the plough, and this weight is, of course, increased by the weight of the furrow-slice as it is lifted from its bed. Hence, the draught of the plough is but slightly increased by an increase of speed, since the friction is not increased, but remains nearly the same on the bottom of the furrow, on the land-side, and between the furrow-slice and the mould-board, whether the motion be fast or slow. Modern improvements have aimed, therefore, to overcome the friction and resistance by an improved construction of the mould-board and by the use of better materials, for it is now well established, by practical experiment, that the draught depends less on the weight of the plough itself, than on its construction. The draught does not increase in proportion to an increase of weight, and hence, though some still object to the modern plough, as compared with the models in use fifty years ago, on account of their being heavier, yet it is a common remark that the draught is easier, and they require much less strength of team to do the same, or a far better work.

The excessive friction of the old-fashioned bull plough was the great objection to it. It was constructed awkwardly enough, in the first place, but the form of the mould-board was especially defective, and this it was that required such great strength of team. It did pretty fair work, no doubt, on light and easy soils, but the share and the mould-board were so attached, as to make the wedge too blunt, which, of course, made the friction excessive. It broke and crumbled the furrow-slice, in places, and was not calculated to turn a flat furrow. But the action of the old plough was not uniform, some furrows being set too much on the edge, while others were laid quite flat. It was not its weight so much as its form that needed improvement. Its construction not being based on such principles as to make it of easy draught, it was more difficult to hold, more easily thrown out of the ground, and required constant watchfulness on the part of the ploughman. It was difficult to cultivate to any depth without the help of one or two men to ride on the beam to "hold down." The mould-board was frequently shod with iron, as we have seen, to diminish the friction and prevent wear; but it was in strips, and uneven, and the desired effect was not always produced.

It is not too much to say that the changes and modifications made in the mould-board within the last forty years, have effected such improvements as to enable the farmer to do a much greater amount of better work, with far less expenditure of strength, and to reap larger crops as the result, while the original cost of the implement is less than it formerly was. The saving to the country from these improvements alone, within the last twenty-five years, has been estimated at no less than $10,000,000 a year in the work of teams, and $1,000,000 in the cost of ploughs, while the aggregate of the crops has been increased by many millions of bushels.

These improvements in the form of the

mould-board will be understood, when we consider that one side of the furrow-slice, as soon as it is cut, begins to rise gradually, till, as the plough advances, it is turned entirely over. The mould-board should be so constructed as to offer the least possible resistance as it moves along, and to run as far as possible without clogging, to which the old plough was especially liable, the lines of its mould-board being concave, instead of convex or straight, according to the rules more recently laid down requiring the "board to be composed of straight lines in the direction of its length, with continually increasing angles to the line of the furrow; and these last lines are severally straight, convex, and concave." Ransome, after the most mature study of this implement, says: "Although no one form of mould-board will, or can be applicable to every variety of soil and circumstance, there is no description of soil for which a perfect mould-board may not be made by this rule in some of its modifications."

Such was the condition of things with regard to this, and most other farm implements, at the close of the last and beginning of the present century, or till within the last forty or fifty years.

The first patent for a cast iron plough in this country, is believed to have been that of Charles Newbold, of Burlington, N. J., in 1797. This patent combined the mould-board, share, and land-side, all cast together. It was so great and manifest an improvement on the old wooden plough, that Peacock, in his patent of 1807, paid the original inventor of the plough of 1797 the sum of $500 for the privilege of copying some parts of it.

A cast iron mould-board had been invented in Scotland, it is proper to remark, as early as 1740, by James Small, but he still continued to use the wrought iron share, cast iron not being used in its construction till 1785. Small established a plough manufactory in 1763, and the founding of cast iron being introduced not long after, led him to conceive the idea of making patterns of the principal parts of the plough. But whether the American inventor had a knowledge of the existence of these ploughs, is not known.

Such was the extreme importance of this implement, as to command the attention of scientific men in studying to improve its form and construction, and, in 1798, Thomas Jefferson applied himself to the task, and wrote a treatise on the form of the mould-board, discussing it on scientific principles, calculating mathematically its exact form and size, and especially its curvature, with a view to lessen its friction. I have seen his original manuscript of this essay, containing his drawings, etc., now in the possession of a gentleman of Boston. Since his time, such an amount of scientific and practical skill has been brought to bear upon this implement, as to leave little to suggest. But it should be stated that the successive improvements were not readily adopted by the mass of farmers. Their introduction was far slower than that of an improved implement would be at the present time, though the prejudice against the use of new inventions has not yet wholly disappeared. Many a farmer, clinging to the old wooden plough, asserted that cast iron poisoned the ground, and spoilt the crops. Still, the modern styles gradually gained ground, as real improvements always will. In one respect we have especially improved, and that is the adaptation of our ploughs to the different kinds of soil on which they are to be used. When attention was first directed to the improvement of this implement during the latter part of the last century, the principles of ploughing were not so well understood as at the present day. The work was neither so carefully done nor so critically examined, and, consequently, the want of different forms of the plough adapted to the varieties of surface and of soil was not so much felt as now, when nearly every farmer sees that he cannot produce directly opposite effects with the same implement. In another respect, also, custom has changed as much as the forms of the plough itself, for while a half century ago it was made by the blacksmith in nearly every small town in the country, it is now made in large establishments by those who devote themselves exclusively to the business, and these establishments have gradually diminished in number, while the aggregate number of ploughs has largely increased. In the single state of Massachusetts, for example, there were, in 1845, no less than seventy-three plough manufactories, making annually 61,334 ploughs and other agricultural implements, while in 1855 there were but twenty-two plough manufactories, making 152,686 ploughs, valued at $707,175.86. Up to the year 1855 there had been no less than three hundred and seventy-two patents issued from the Patent

Office at Washington, for changes and improvements on this implement.

I need not dwell upon the wonderful performances of the steam plough, the practical and successful operation of which is one of the proudest triumphs of modern agricultural mechanics and engineering. I need not dwell on the vastly increased facilities it will give for developing the resources of the west, through whose almost boundless prairies it will run unobstructed, like a thing of life.

The harrow naturally follows the plough, and is equally indispensable. It has, probably, undergone less changes and modifications, if we except those made within the last ten years, than any other of our farm implements, most of the forms of the modern harrow in use bearing a close resemblance to those of the ancients, as illustrated on medals and sculptures. The old harrow, and that used by our fathers till within the memory of men still living, was made of wood, of simple bars and cross-bars furnished with teeth. More recently the material used has been of iron, with teeth commonly pointed with steel, and this has partly obviated the objections made to this implement on account of its great weight, which required too slow a motion on the part of the team.

A light, sharp-toothed harrow, moved quickly over the ground, accomplishes far the best work in preparing the soil for the reception of seed. So important is it that this implement should be rapidly moved, that the work of the same implement, drawn sluggishly over the ground, or moved more rapidly, differs very widely in its results. A certain amount of weight is very important, it is true, and this weight differs according to circumstances; but it is desirable to have it in the most compact form. The recent improvements, by which a complete rotatory motion is secured, together with a certain degree of flexibility gained by pieces of framework hinged together so that any part of the implement can be lifted or moved without disturbing the operation of the rest, seem to leave little to desire in respect to this important farm implement. This is a case, as well as that of the plough, of most decided improvement in an implement of very ancient date, handed down to us, in fact, from remote antiquity.

As specimens of important labor-saving implements of modern invention and construction, we may mention a large class known as horse-hoes, grubbers, cultivators, drills, seed-sowers, and others of like character. The seed-sowers and drills scatter the seed more uniformly than it could possibly be done by hand; dropping also, when it is desired, any concentrated or pulverized manure, and covering the rows. All the implements named, of which there is an infinite variety of forms, are most marked and decided improvements on manual labor, which was required by our forefathers for the same processes.

Another large class of implements, among the most important of modern inventions, are the various kinds of harvesters, particularly the reapers and the mowers.

Many of our grain crops, like wheat, barley, and oats, come to maturity at nearly the same time. Wheat is liable to sprout in moist weather, and barley to become discolored if allowed to stand too long. The work of harvesting by the old method was necessarily slow and protracted. Previous to the introduction of the reaper, very large quantities of our most valuable grain were annually lost, owing to the impossibility of harvesting it properly and at the proper time. It is not, therefore, too much to say, that the successful introduction of the reaper into our grain fields has added many millions of dollars to the value of our annual harvest, not only by enabling us to secure the whole product, but also by making it possible for the farmer to increase the area of his cultivated fields, with a certainty of being able to gather in his whole crop.

The sickle, which was in common use for harvesting the grain crop till the introduction of the cradle, and, in fact, till a very recent date, was undoubtedly as old as Tubal Cain. No one who has had a practical experience of its use, bending over in the most painful position from "early morn till dewy eve," can fail to appreciate the immense saving of human muscle, and of slow and wearisome hand labor, by the introduction and use of the reaper.

It would have been an astonishing evidence of stupidity on the part of the ancients, who relied mainly on wheat and the other smaller grains, had they not tried, at least, to replace the sickle by something better. This they did, for it is recorded that the farmers of Gaul used a simple reaper, not long after the time of Christ. Pliny asserts that the inhabitants of that country fixed a series of

"EXCELSIOR MOWER" WORKING WITH THE CUTTER BAR ELEVATED AND RIGHT WHEEL PASSING THROUGH A DITCH.

WHEELER'S PATENT REAPER AT WORK.

knives into the tail-end of a cart, and this being propelled through the grain, clipped off the ears or heads, and thus it was harvested.

Many efforts were made in England and Scotland, at the beginning of the present century, to accomplish the same result, but with no great success. In the year 1833, Schnebley, of Maryland, obtained a patent on a machine for reaping grain; but that of Obed Hussey, of Baltimore, patented in the same year, has not only been successfully and somewhat extensively used from that time to this, in the western states, but has furnished the basis for the most successful models in this country, among the most noted of which are those of McCormick, of Virginia, and Manny & Atkins, of Illinois.

The American reaping machines have been brought to a high state of perfection within the last ten years. They have already a world-wide reputation. Their superiority is generally acknowledged, and the credit of having for the first time made the principles applicable to such machinery practically useful, undoubtedly belongs to our own ingenious mechanics. Five years ago the American machines were brought to trial at the exhibition at Paris, in competition with the world.

This trial took place in a field of oats about forty miles from the city, each machine having about one acre to cut. Three machines were entered for the first trial, one American, one English, and a third from Algiers, all at the same time raking as well as cutting. The American machine did its work in twenty-two minutes, the English in sixty-six, and the Algerian in seventy-two. At a subsequent trial on the same piece, when three other machines were entered, of American, English, and French manufacture, respectively, the American machine cut its acre in twenty-two minutes, while the two others failed. The successful competitor on this occasion, "did its work in the most exquisite manner," says a French journal, "not leaving a single stalk ungathered, and it discharged the grain in the most perfect shape, as if placed by hand, for the binders. It finished its piece most gloriously."

The contest was finally narrowed down to three machines, all American. Two machines were afterward converted from reapers into mowers, one making the change in one minute, the other in twenty. Both performed their task to the astonishment and satisfaction of a large concourse of spectators, and the judges themselves could not restrain their enthusiasm, but cried out "Good, good, well done," while the people hurrahed for the American reaper, crying out, "That's the machine, that's the machine!" "All the laurels," says the report of a French agricultural journal, "we are free to confess, have been gloriously won by Americans, and this achievement cannot be looked upon with indifference, as it plainly foreshadows the ultimate destiny of the new world!"

And so with the mowing machines. The hay crop of the country cannot be estimated at less than a hundred millions of dollars a year. It must be gathered at a season when labor is to be obtained with difficulty, and at even higher than the usual price of wages, and when the weather is often fickle and precarious, generally oppressively hot, making the task doubly irksome and unhealthy. But besides this, many acres of grass on our ordinary farms ripen at about the same time, which, if allowed to stand too long, will decrease in quantity and value of hay which might otherwise have been made from it. By the use of the mowing machine it can be secured and saved most quickly, easily, and cheaply.

Mowing is, at best, one of the severest of the labors of the farm, notwithstanding the efforts of poets and other writers to make us believe it is all fun. It calls into play nearly every voluntary muscle in the body, requiring not only the more frequent and regular movements of these muscles, but, on account of the twisting motion of the body, an unusually great exertion of muscular power. Nor does it require any small amount of skill to become a good mower, since it is proverbial that, unless the boy becomes accustomed to the scythe, and learns while young, he can never become a skilful mower. It is not at all surprising, therefore, that mechanical ingenuity should have been directed to shorten and lighten this severe operation.

The first mowing machine which met with any success in this country, is believed to have been that of William Manning, of New Jersey, patented in 1831, and which met with a limited success more than twenty years ago. In 1834 appeared the Ambler patent, simple in its construction, with a cutter bar of wrought iron, and a single smooth-edged knife, operated by means of a

crank which gave it a vibratory motion. It was used in 1835 and 1836. A few other efforts were made about that time, and met with some slight success, but it was not till a recent date that the machine was constructed in a manner to give a confident hope of its ultimate and complete success. That hope has been fully realized, and the mower is one of the grandest agricultural inventions of modern times. Like all other inventions, it was adopted by the farmer with his usual caution, but its triumph has been so complete, that its utility and its economy are almost universally admitted, and the number manufactured, and the sales to farmers, have been immense, and are even now rapidly increasing every year. As an evidence of this, McCormick is reported to have sold no less than four thousand of his reapers to the farmers around Chicago, for the single harvest of 1860, and other manufacturers have no doubt met with similar encouragement.

Contrast also the slow process of raking hay by the common hand rake, with the rapid and easy method of gathering it with the horse rake, accomplishing with great ease to a single man who drives, the labor of at least ten men with the old hand rake. With a common revolving rake, from twenty to twenty-five acres a day may be gathered up, and sixteen acres a day have been raked with the simplest form. What a security on the approach of a storm, when the farmer would be comparatively helpless with nothing but the common rake to rely on!

But what shall we say of the modern threshing machine as compared with the flail? Who does not well remember its familiar sound, and that beautiful description of Cowper—

> "Thump after thump resounds the constant flail,
> That seems to swing uncertain, and yet falls
> Full on the destined ear"?

Only think of the difference in the results. At the trial of threshing-machines at the Paris exhibition, the victory was won by an American machine, and during the operation, to ascertain the comparative rapidity of threshing, six men were engaged in threshing with flails, who in one hour threshed sixty litres of wheat. In the same time

Pitt's American machine threshed	740	litres,
Clayton's English " "	410	"
Duvoir's French " "	250	"
Pinet's " "	150	"

and a French journal, in speaking of the trial, said: "This American machine literally devoured the sheaves of wheat. The eye cannot follow the work which is effected between the entrance of the sheaves and the end of the operation. It is one of the greatest results which it is possible to attain. The impression which this spectacle produced on the Arab chiefs was profound."

At the great fair in New York, in 1853, a machine was exhibited which not only threshed and winnowed the wheat, but measured it, placed it in bags ready for the market, and recorded accurately the number of bushels, and all by one continuous operation.

These vast and acknowledged improvements in harvesting and threshing grain will be seen to be of the utmost importance, when it is considered that we annually raise about two hundred millions of bushels of wheat, and of rye, barley, and oats over one hundred millions, and that the resources of the country may be developed, by the use of machinery, to an extent far beyond the reach of present calculation.

The reaper, the thresher, and the mower are types of the ever restless and progressive spirit of the age. They point out to us a glorious future, in which they will accomplish for us and for our country triumphs grander than the triumphs of arms, for they will develop the means of supporting the millions of human beings which the implements of war can only destroy.

Could the learned Malthus—who proclaimed the gloomy theory that war, famine, and pestilence were checks, designed by an all-wise Being to keep down the increase of population to a level with the means of sustenance—now rise up from his sleep of death and see the population of England more than doubled since his day, and that of this country multiplied many times, while the people are better fed, and better clothed, with less labor and less suffering, with the possibility of a famine wholly and forever removed, he might change his shameful doctrine, and adopt a more cheerful and hopeful view of the providence of God. With an immense multiplication of the human species in all civilized countries which have been devoted to the arts of peace and the development of their material resources, a bountiful Father has sent us a superabundance of food, instead of famine, and has taught us to rely on the exhaustless bounty of the fruitful earth, and upon his beneficent

promise that seed time and harvest shall never fail to supply the daily wants of his children.

But with all the progress which we have made in improving the implements of the farm, we have not reached perfection. No bound is set to human ingenuity, and further means may yet be devised to shorten labor and increase the products of the soil.

We cannot hope, nor is it desirable, to avoid labor. This is not the object of improved machinery; but to make labor more attractive, agreeable, and productive; to bring into subjection the rude forces of nature, and make them do our bidding and increase our stores; to redeem thousands of acres now lying waste from wildness and desolation, and to make our country the granary of the world—these are triumphs we may hope to gain from the introduction and use of improved machinery, and in this view the subject commends itself to the attention of the highest intellect, and opens a field for the labors of the noblest philanthropy.

PROGRESS IN THE RAISING OF STOCK.

Allusion has already been made, incidentally, to the character of the cattle from which the early importations into this country must, for the most part, have been drawn.

The first animals that arrived in any part of the present territory of the United States were probably those taken to the colony on the James river, in Virginia, previous to the year 1609, the exact date of their arrival not being known. Several cows are known to have been carried there in 1610, and during the following year, 1611, no less than one hundred head arrived there from abroad.

It is probable that those first introduced there were brought over by the earliest adventurers, and others came from the West Indies. It is well known that some of their cattle came from Ireland. Those from the West Indies were the descendants of cattle brought to America by Columbus in his second voyage, in 1493. I have seen it asserted that so important was it considered that the cattle introduced into the infant colony should be preserved and allowed to increase, that an order was issued forbidding the killing of domestic animals of any kind, on pain of death to the principal, burning of the hand and cropping the ears of the accessory, and a sound whipping of twenty-four hours for the concealer of a knowledge of the facts. Such encouragement being given to the raising of stock, it is not surprising to find the number of cattle in Virginia in 1620 amounting to about five hundred head; and in 1639, to thirty thousand; while from the fact that in 1648 the number had been reduced to twenty thousand, we may infer that the restrictions on killing them had been removed. Many also had been sent to New England.

The first cattle that were introduced into the Plymouth colony, and undoubtedly the earliest brought into New England, arrived at Plymouth, in the ship Charity, in 1624. They were imported by Governor Winslow for the colony, and consisted of three heifers and a bull. A division of the stock, which appears to have been held in common, was made in 1627, when one or two are described as black, black and white, others brindle; an evidence that there was no uniformity of color. These animals were to remain in the hands of individuals receiving them for ten years, they to have the produce, while the old stock was still to be owned by the colony in common. Twelve cows were sent to Cape Ann in 1626, and in 1629 thirty more, while in 1630 about a hundred animals were imported for the "governor and company of the Massachusetts Bay in New England." These cattle were kept at Salem.

In the meantime, the first importation was made into New York from Holland by the Dutch West India Company, and the foundation laid for a valuable race of animals. The number in all introduced was one hundred and three, consisting of horses and cattle for breeding. The company furnished each tenant with four cows, four horses, some sheep and pigs, for the term of six years, when the number of animals received was to be returned, their increase being left in the hands of each farmer. Then the cattle belonging to the company were distributed among those who were unable to buy stock.

And so, for the settlements along the Delaware, cattle were introduced by the Swedish West India Company in 1627. It will be seen, therefore, that before the close of the year 1630, the number of horned cattle in all the colonies must have risen, by natural increase and by the importations above named, to several thousands.

And then, in 1631, 1632, and 1633, several importations were made into what is now New Hampshire, by Captain John Mason, who, with Gorges, procured the

patent of large tracts of land in the vicinity of Piscataqua river, and immediately formed settlements there. The prime object of Mason was to carry on the manufacture of potash, and for this purpose he employed the Danes; and it was in his voyages to and from Denmark that he procured many Danish cattle, chiefly for the purposes of draught. They were, undoubtedly, considerably larger than the average of the cattle of England at that day, of a uniformly light yellow color, and made very fine oxen for labor. They soon became widely diffused over the whole region, and are said to have remained, with a great degree of purity of blood, or little intermixture, down to the year 1820. Traces of them can be found even at the present day. They were, no doubt, large and coarse animals, and well adapted to endure the severity of the climate and the hardships to which they were subjected in the lumbering operations of that new colony. They, unquestionably, did much to lay the foundation of the "native" stock of New England, over which they spread in the course of a very few years, and became mixed with the cattle imported into Salem and Plymouth, and probably, to some extent, with the Dutch cattle already alluded to; perhaps, also, with the black cattle of Spain and Wales, and subsequently with the long-horns and the short-horns, most or all of which crosses were accidental, or the result of individual convenience or other local circumstances. From them the working oxen of New England derive much of their character and reputation for strength, hardihood, quickness, and docility.

Now we find the sources from which the native cattle of this country sprang. The early importations into Virginia were originally derived, mainly, probably, from England; some were from the black cattle of Spain, though the importation of 1611 probably came from England; the cattle of the Plymouth colony came from the coast of Devonshire; those brought into New York from the island of Texel, on the coast of Holland, and were mostly, without doubt, the black and white Dutch cattle; those on the Delaware were brought from Sweden; those in New Hampshire were the large, yellow Danish cattle; and as the earlier importations were the most extensive that were made for many years, these various stocks were crossed, and thus formed the original stock of the country.

There is sufficient evidence to show that they were interchanged between the colonies to some extent, at an early day. Some of the Virginia cattle were early sent to New England, while others found their way to Virginia through Pennsylvania, so that the mixture was great and inevitable. On the mode of keeping cattle in the Virginia colony, Glover, a cotemporary, in the *Historical Register*, says: "All the inhabitants give their cattle in winter is only the husks of their Indian corn, unless it be some of them that have a little *wheat straw*, neither do they give them any more of these than will serve to keep them alive; by reason whereof they venture into the marshy grounds and swamps for food, where very many are lost." And Clayton, another equally high authority, says, "that they neither housed nor milked their cows in winter, *having a notion that it would kill them.*" And still another, a Swedish traveller, Kalm, more recently, 1749, in speaking of the James river colony, says: "They make scarce any manure for their corn fields, but when one piece of ground has been exhausted by continual cropping, they clear and cultivate another piece of fresh land, and when that is exhausted proceed to a third. Their cattle are allowed to wander through the woods and uncultivated grounds, where they are half starved, having long ago extirpated almost all the annual grasses by cropping them too early in the spring, before they had time to form their flowers or to shed their seeds." The poorness of pasturage, and want of food had caused the cattle to diminish in size from one generation to another, till they had become stunted and small, and were not improperly termed "little runts," or "natives."

In color, the natives, as already indicated, are exceedingly various. Crosses of the Denmarks with the Spanish and Welsh would naturally have made a dark brindle; crosses of the Denmarks and the Devons often made a lighter or yellowish brindle; while the more recent importations of Jerseys and short-horns have generally produced a beautifully spotted progeny. The prejudice in favor of deep red, which was long the favorite color of New England, is fast giving way to more variegated colors.

In the year 1553, some Portuguese had taken cattle to Newfoundland and Nova Scotia, while in 1604, a Frenchman had introduced the small French cattle into Acadia,

from whence, in 1608, they were carried to Canada, and from there several animals were taken into what is now known as the "American Bottom," in Illinois, in 1682, where they increased rapidly. The first cattle imported into Carolina were obtained in England in 1670, and we find that the Indians on the Red River in Louisiana had cattle as early as 1690. The first importation into Georgia was made, so far as we are informed, in 1732, followed by others in 1735.

In 1750 the keeping of stock had assumed some importance in certain localities, particularly in the older eastern settlements, where it had become comparatively safe from molestation, for it is known that some large farmers in Rhode Island kept as many as one hundred cows and upward, and the sale of thirteen thousand pounds of cheese from one farm is recorded, and in one case seventy-three cows produced ten thousand pounds of butter in five months, or an average of very nearly a pound a day to a cow, which, for that length of time, must be regarded as a good yield.

It will be borne in mind that up to this time, and in fact for nearly half a century later, no well-directed efforts at improvement had been made even in England; but at that time some localities there possessed classes or races of animals peculiar to themselves, whose merits had begun to attract attention, though there was no general interest in the subject before the days of Bakewell, who "sat in the huge chimney corner of a log kitchen, hung round with the finest joints of his dried oxen, preserved as specimens of proportions; a tall, stout, broad-shouldered man, of brown, red complexion, clad in a brown, loose coat and scarlet waistcoat, leather breeches, and top boots," and demonstrated what could be done by attention to true physiological laws in the breeding of cattle. The choice of breeds and obtaining good crosses were nowhere thought of previous to his time. In fact, before the cultivation of the natural and artificial grasses and the introduction of the turnip and other root crops, the farmer had comparatively little control over the frames of his cattle. He was obliged to give them such food as he had, or rather they were obliged to take such as they could get, which, on a vast majority of the farms, both of England and the American provinces, at that time, was what would now be considered pretty hard fare. Hard seasons and the want of winter feeding and shelter were obstacles vastly more difficult to overcome then than now.

Those who should, "during the space of one year, keep the greatest weight of horned cattle," got the premiums offered by the London Society of Arts, rather than those who should exhibit the greatest degree of improvement in their animals. But with the increase and abundance of good food, the tide of improvement set in, and size began to be the grand aim of the earlier graziers, and the production of enormous monstrosities was the result. Now Bakewell, a man of remarkable sagacity and close observation, steps in and establishes a new system of animal development. With him mere size was no object. He wanted to build up a breed which should give the greatest amount of saleable beef for the amount of food consumed, having the best parts bearing a larger proportion to the offal than what was usually found. Smallness of bone, and tendency to fatten and mature early, he thought indispensable in cattle bred for the shambles. Up to his day, both in England and America, it had been customary to keep oxen till they were seven or eight years old, before they were fatted for the butcher. He travelled over England, Ireland, and Holland to find animals adapted to his purposes. "The old notion was," says Arthur Young, "that where you had large bones there was plenty of room to lay the flesh on. This, Mr. Bakewell has proved to be a mistake. He asserts the smaller the bones, the truer will be the make of the beast, the quicker she will fatten, and her weight will have a larger proportion of valuable meat." The greatest physiologists have shown, upon the highest scientific principles, that the formation of a large bony system is the result of defective nutrition.

Other breeders, stimulated in part by Bakewell's efforts, and the wide and honorable reputation he achieved, immediately entered the field of competition, and Chaplin became the champion of the Lincolnshire sheep, as Bakewell of the Leicesters; and the brothers Charles and Robert Colling directed their efforts to improving the short-horns, as Bakewell the long-horns; while the Duke of Bedford, Quartly, and others, not to be outdone, espoused the claims of the Devons, and Benjamin Tonkins those of the Here-

fords. So successful were these enterprising breeders, both in preserving purity of blood in their stock, and in extending the reputation of their several herds, that at Charles Colling's sale on the 11th of October, 1810, Comet was bid off at 1,000 guineas, or $5,000, and many other animals about as high in proportion; the forty-eight head sold, including considerable young stock, bringing no less than $35,579. The cow Lily, sired by Comet, brought 410 guineas, or $2,050; the bull Petrarch, also by Comet, sold for 365 guineas, or $1,825, and the calf Cecil for 130 guineas, or $650. There were seventeen cows, eleven bulls, seven bull calves, seven heifers, and five heifer calves, for which this successful breeder received an average of $741 a head. That sale, and that of Robert Colling in 1818, that of Lord Spencer in 1846, that of the Bates, or Kirkleavington herd in 1850, that of Lord Ducie two years later, and some still more recent and extensive sales, are the marked eras in the history of the short-horns in England, and it was through these sales, and the universal enthusiasm awakened by them, that the short-horns have become more widely spread over Great Britain, and more generally fashionable than any other breed.

Tomkins began with the Herefords in a small way about the year 1766, and at his decease in 1819, his whole herd, consisting of fifty-two animals, including twenty-two steers, and varying in age from calves to two-year-olds and upward, was sold at auction, and brought an aggregate of $23,368, or over $445 a head; one bull sold to Lord Talbot for $2,943, while several cows brought from $1,000 to $1,200 a head.

Both these breeds are celebrated for early maturity. Either of them may be prepared for market at two or three years of age, far better than the old style of cattle could be at five, six, and seven years, and be of nearly equal weights. I have mentioned these facts to show how it was that the average weight o cattle sold in the Smithfield market increased from 370 pounds in 1710, to over 800 pounds at the present time. A select committee of the House of Commons, in a report printed in 1795, after a full investigation, stated that since the year 1732, their neat cattle had, on an average, increased in weight and size at least one-fourth, or twenty-five per cent., which would fix the average weight in 1795 at about 462 pounds. The average age had formerly been over five years. In 1830, owing, in a large measure, to the enthusiasm which had been created, commencing first by the efforts of individuals, and radiating out through the community in every direction, the average weight had increased to 656 pounds, an increase, in twenty-five years, of more than forty per cent. in weight, while the average age had been reduced to four years instead of five. What a contrast! A saving of one whole year's consumption of forage, and an increase of forty per cent. in the profitable results, in the course of a quarter of a century! But since then the average age has been still further reduced, and the average weight a good deal increased.

Such being the striking results in England, it is not surprising that when an interest was awakened in the improvement of our agriculture, a desire was felt by intelligent breeders to avail themselves of the advantages which had already been gained abroad. Importations began, and a more systematic course of breeding was adopted; at first, by a very limited number of enterprising farmers, till, within the last twenty years, that number has rapidly increased, and the results have become more marked and perceptible.

It may be remarked in passing, that two modes of improvement were open to the farmer and breeder, either of which, apparently, promised good results. The first was to select from among our native cattle the most perfect animals not known or suspected to belong or to be related to any of the well-established breeds, and to use them as breeders. This mode of improvement is simple enough if adopted and carried on with animals of any known race or breed, and, indeed, it is the only course of improvement which preserves the purity of blood. This was chiefly the course adopted in England by Bakewell with the long-horns, by the Collings and others with the short-horns, by Tomkins, Price, and others, with the Herefords, and by the Duke of Bedford and others with the Devons. Had they resorted to any other, they would have run the risk of a total failure and ruin of those valuable races. Their object was not to build up a new breed by crossing, so much as to improve and perfect the races, already valuable, which were to be found in particular localities or counties, which gave them their name.

But our circumstances were entirely different. We had no race and no breed of

cattle among us. The term *race*, properly understood, applies only to animals of the same species, possessing, besides the general characteristics, of that species, other characteristics, which they owe to the influence of soil, climate, nourishment, and habits of life to which they have long been subjected by man, and which they transmit with certainty to their progeny; and it is essential that they should have possessed these characteristics from a time to which "the memory of man runneth not to the contrary." The term *breed*, on the other hand, applies to a family of animals built up by a long series of careful breeding, till certain desired characteristics become fixed, capable, and sure of being transmitted. As might be supposed, the characteristics and peculiarities of *races* are more inherent, more fixed and strongly marked than those of families, or breeds built up artificially. But in general the characteristics of both races and breeds are so permanent, and so well marked, that if an individual supposed to belong to any one of them were to produce an offspring not possessing them or possessing them only in part, with others not belonging to the race or breed, it would be just ground for suspecting a want of purity of blood.

This being the acknowledged, and only proper sense and use of these terms, it follows that no grade animals, and no animals not possessing fixed peculiarities or characteristics which they share with all other animals of the class of which they are a type, and which they are capable of transmitting with certainty to their descendants, can be recognized by breeders as belonging to any one distinct race, breed, or family.

The term "native," or "scrub," is applied to a vast majority of our American cattle, which, though born on the soil, and thus in one sense natives, do not constitute a breed, race, or family. They do not possess characteristics peculiar to them all, which they transmit with any certainty to their offspring, either of form, size, color, milking, or working properties. It does not follow, to be sure, that because an animal is made up of a mixture of blood, almost to infinity, he may not be, as an individual animal, and for specific purposes, one of the best of the species; and for particular purposes individual animals might be selected from among those commonly called "natives" in New England, and "scrubs" at the south and west equal, and perhaps superior, to any among the families produced by the most skilful breeding, notwithstanding the fact that they have sprung from a great variety of cattle procured at different times on the continent of Europe, in England, and in the Spanish West Indies, brought together without any regard to fixed principles of breeding, but from individual convenience, and by accident; but it is true that our native cattle possess neither the size, the symmetry, nor the early maturity of the short-horns; they do not, as a general thing, possess the fineness of bone, the beauty of form and color, nor the activity of the Devons or the Herefords; nor do they possess that uniform goodness and quantity of milk of the Ayrshires, nor the surpassing richness of milk of the Jerseys; but above all they do not possess the power of transmitting the many good qualities, which they often possess in an extraordinary degree, to their offspring, which is a characteristic of all well-established breeds.

Now, to build up a breed, or family, on such a foundation, in the mode already indicated, requires great experience in selection, a quick and sure eye, and judgment of the true points in stock, a mind eminently unprejudiced, and a patience and perseverance perfectly indefatigable and untiring. It is absolutely necessary, also, to pay special attention to the calves thus produced—to furnish them at all times, summer and winter, with an abundant supply of nutritious food, and to regulate it according to their growth.

Few men could be found either capable or willing to undertake the herculean task of building up a new breed in that way from grade stock. A prominent and almost insuperable objection would meet them at the very outset, that it would require a long series of years—longer, than the natural life of most men—to arrive at any very satisfactory results, from the fact that no two animals, made up, as our "native" cattle are, of such a variety of elements and crosses, could be found sufficiently alike to produce their kind. The principle that like produces like is perfectly true, and in the well-known breeds it is not difficult to find two animals that will be sure to transmit their own characteristics to their offspring; but with two animals which cannot be classed with any breed, the defects of an ill-bred ancestry will be liable to appear through several generations to thwart and disappoint the expectations of the breeder.

The second method is more feasible, and

that is, to select animals from races already improved and well-nigh perfected, to cross with our cattle, selecting such animals from the well-established breeds as are best calculated for the special purposes for which we want them. If our object is to improve stock for the dairy, taking such only as belong to a race distinguished for dairy qualities; or, if resort must be had to other breeds less remarkable for such qualities, such only as have descended from large and generous milkers. We ought to be able to rely with some confidence upon getting the qualities which we seek. Milking or dairy qualities do not belong to any one breed or race exclusively, though, as they depend mainly on structure and temperament, which are hereditary to a considerable extent, they are, themselves, transmissible. In almost every breed we can find individual milkers which greatly surpass the average of the cows of the same family, and from such, many suppose good crosses may be expected without much regard to other circumstances. It is not accidental good qualities that we want, so much as those which are surely transmissible. We do not want to breed from an animal—a cow for instance—that is an exception to the rule of her race or family. A good calf from her would be, to a great extent, the result of chance. We cannot expect nature to go out of her course, to give us a good animal, if we violate her known laws as developed by our knowledge of physiological structure.

Such are a few of the considerations which, no doubt, led the early importers of the modern improved foreign stock to make an effort on our native and grade cattle. What has been the result? It can be clearly shown that there has been a large increase in the number of the cattle of the country. Of that there could, of course, be no question, since this increase would naturally follow from an addition of new territory and the more perfect development of the agricultural resources of the country. But I think it can be clearly shown, also, that there has been a positive improvement in the intrinsic qualities of the common stock of the country as a whole. I am far from detracting from the merits of our native cattle. They are far better than could have been expected from the loose manner in which they were "made up." Many of them have great merit, and individual animals are to be found among them, as already remarked, which would be hard to beat by any pure bred animals. As working oxen, the native cattle of New England are unsurpassed by any in the known world, and they have the reputation of being so, both in other parts of this country and in Europe, where their qualities are known. But they have their defects and it is useless to blind our eyes to them.

I expect, therefore, to be able to show that some actual progress has been effected upon the common stock of the country. But to what is this progress owing? Is it merely that which is due to better keeping, both summer and winter? I have already intimated that the treatment the cattle of the country received during the most of the last century was far from being calculated to improve them, scarcely, even, to keep them on foot. Even so late as 1841, Mr. Colman asserted that the general treatment of cows at that time, in New England, would not be an inapt subject of presentment by a grand jury. I was cognizant of the manner in which the stock was kept in many a country town at that time, and I am strongly inclined to agree with him; and, judging from the well-known anxiety of those who enter milch cows now for premiums at the fairs, to show that their yield has been enormous, and that they have lived upon little or nothing, one would suppose their keeping was not much improved, even yet.

But, as compared with the last century and the earlier part of this, there has been a vast improvement in the shelter, mode of feeding, and the general treatment, and this has, of course, had its effect in increasing their milking qualities and their appearance. But, apart from this, there can be little doubt, I think, that there has been a positive improvement in our stock as a whole; that is, the general average of the stock of New England is better than it was forty or fifty years ago. There were individual animals then, among the native or common stock of the country, whose yield of milk was quite remarkable, and would be, at the present day, and among the best stock of the present time; but we cannot, and ought not to reason from individuals, but from the general average stock of the country.

These remarks have special reference to the stock kept in the eastern and older sections of the country—those parts where the herds are small, and kept not so much for raising for beef as for their other products, as milk, butter, cheese, and labor.

MILCH COW.

Engraved for C. L. Flint's "Treatise on Milch Cows and Dairy Farming."

SHORT-HORN BULL. DOUBLE DUKE.

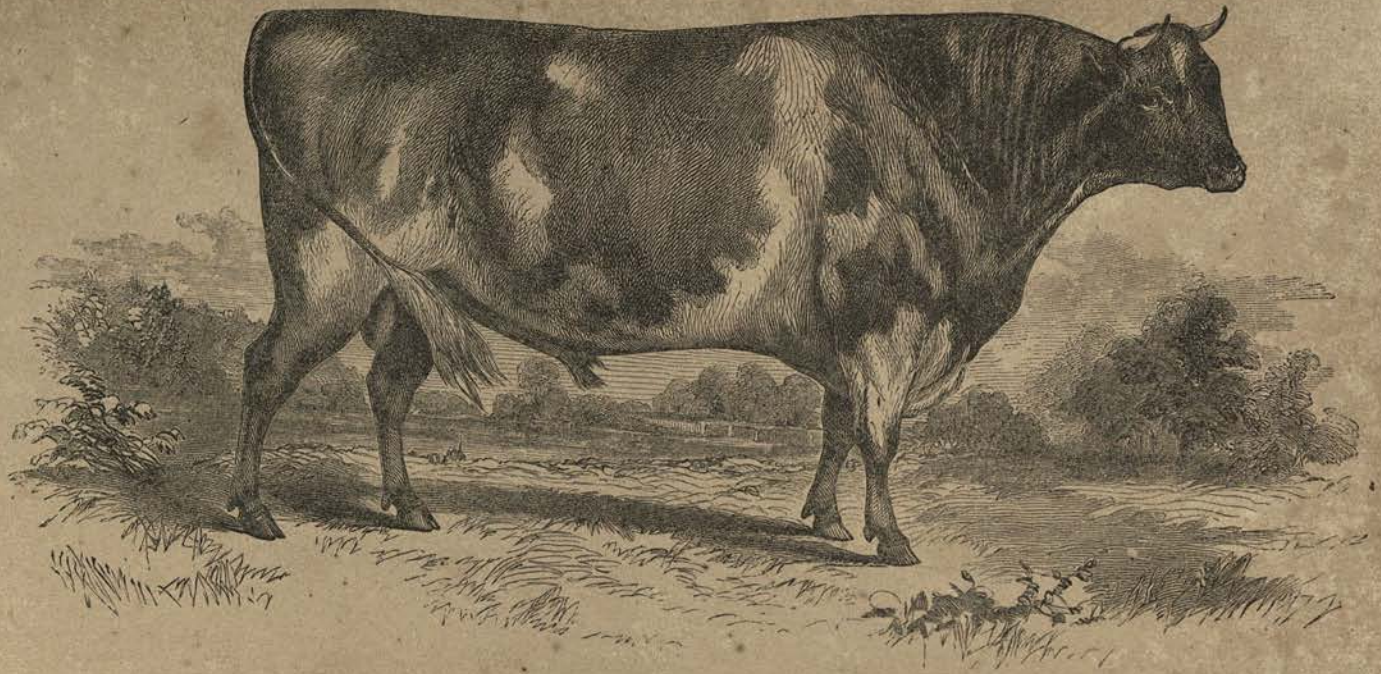
Owned by the Harvest Club, Springfield, Mass. From Flint's Sixth Annual Report

JENNY. (700.)

Winner of the first prize in class "Imported Devon Cows," at the New York State Agricultural Show at Elmira, 1855, and at the U. S. Agricultural Show at Boston, 1855. Bred by George Turner, Esq., of Barton, Exeter, Eng The property of Edward G. Faile, West Farms, Westchester Co., N. Y.

DEVON BULL. TECUMSEH. (567.)

Bred by Edward G. Faile, West Farms, Westchester Co., N. Y. Tecumseh took the first premium as a calf at the Show of the N. Y. State Agricultural Society in 1854; the first as a yearling at the Show of the same Society in 1855; the first at the Show of the U. S. Agricultural Society in 1855; the first as a two year old at the Show of the same Society in 1856; and the first at the Show of the American Institute in 1856. He was sold to Juan Emanuel Macias, Esq., and taken to the Island of Cuba in 1857.



AYRSHIRE BULL.

Owned by Dr. Geo. B. Loring, Salem, Mass. Copied by permission from the Sixth Annual Report of Secretary of Massachusetts State Board of Agriculture.

In the great west, where the cattle are, and have for some years, been kept to supply the stalls in our eastern markets, and where, after all, as compared with other sections and other objects, early maturity and a tendency to fatten are of transcendant importance, no one could be so blind to the facts as to deny that there has been a vast and most gratifying progress even in the intrinsic qualities of the stock. Every car-load of those splendid Kentucky, Ohio, Indiana, and Illinois cattle shows this in a manner not to be mistaken. Compare them with the class of animals formerly, and even now in some sections, to be found at the west, and more commonly at the east, and mark the contrast. The one is thrifty, grows rapidly, fats easy, and is ready at a very early age for the market, while from an eighth to a quarter part of the cost of labor and of keeping, which must be incurred every year in raising such a class of animals as the other, is wholly lost from misapplication.

In 1850, there were 18,378,907 head of cattle in the United States, of which over six millions (6,385,094) were milch cows, nearly two millions (1,700,744) were working oxen, and ten millions (10,293,069) other cattle, not including horses, sheep, or swine; and the value of animals slaughtered amounted to the vast sum of more than one hundred and eleven millions of dollars ($111,703,142). Now if by the keeping of better stock we add to their value and the profit derived from them, without increasing the cost, we make, of course, an absolute gain on the receipts from the same amount of capital invested. A distinguished breeder places this in a clear light as follows: "Suppose that the eighteen millions of neat cattle now in the United States, by the infusion of better breeds among them generally, should, in their earlier maturity and increased product of milk and flesh, with an equal consumption of food, and by a moderately increased amount of care, produce an additional profit of one-fifth, or only twenty per cent.—certainly a moderate estimate—the annual value of such improvement will be that which is derived from an additional invested capital of thirty millions of dollars; a vast sum in the aggregate of our agricultural wealth." This is a true statement now, and it applied with still greater force when the spirit of improvement began.

But to return to the importation of modern improved stock from abroad for the specific purpose of improving the stock of this country. In the year 1783, three gentlemen of Baltimore—Messrs. Goff, Ringold, and Patton—sent to England for superior cattle; and, in 1785, a bull from this importation was taken to Kentucky, followed, not long after, by another lot of the same importation. A half-breed bull was taken to the same section about the year 1804, and is said to have greatly improved the stock of that state. Some of the cattle of that early importation were commonly called the "milk breed," and others the "beef breed." For a long time they went by the name of the "Patton stock." The beef breed were, probably, long-horns—large, coarse, and rough animals, but slow in maturing. The others are said to have been short-horns. Others were also taken from Virginia to Kentucky, but none of them were, probably, pure bloods, although the Patton stock gained a wide and deserved reputation.

In 1817, Colonel Sanders, of Kentucky, sent for twelve head of the best that could be found in England. Six of them were short-horns, or Teeswaters. Two of these short-horns were also imported for Kentucky in 1818. These various importations, commencing with the first high-bred animals taken to the west in 1785, were the pioneers; and though the pedigree of some of them could not be given, they not only infused superior blood into the stock of that region, but excited a spirit of emulation among the farmers there which had an exceedingly salutary effect. There is little doubt that some of the best cattle in southern Ohio owe their origin to the early imported animals of Kentucky.

A few short-horns were brought into Westchester county, New York, as early as 1792 and 1796. They were kept pure for some years, but finally became scattered, leaving their descendants in that section to this day. Other importations into New York were made as early as 1816 and 1822. In July, 1818, a short-horn bull, widely known as "Cœlebs," and a heifer, "Flora," were imported into Massachusetts by Mr. Coolidge, and sold, in 1820, to Colonel Samuel Jaques, of Somerville. From "Cœlebs," by selecting superior native cows, Colonel Jaques succeeded in raising a fine milking stock, long known as the "Creampots." "Flora" had fourteen calves between 1819 and 1833, ten of which were by "Cœlebs." The same

year (1818), also, Gorham Parsons, of Brighton, Massachusetts, imported a pure breed short-horn bull, called "Fortunatus," or "Holderness," and his descendants were widely disseminated through New England. Another short-horn bull was brought into Massachusetts by Theodore Lyman, of Boston, from whence he was shortly after sent to Maine; and, in 1825, Mr. W. Pierce, of Portsmouth, New Hampshire, imported a celebrated short-horn, "Nelson," and the cow "Symmetry," the parents of the great ox "Americus," so large as to be taken about on exhibition, for which purpose he was afterward taken to England.

It was also in 1818 that Stephen Williams, of Northboro', Mass., imported the famous bull "Young Denton," the sire of many very excellent grade animals, the heifers proving fine milkers. Many other fine short-horns were taken into Massachusetts after the year 1820, but though they left some superior grades, they were not appreciated by the farmers generally, and attention was gradually directed to other breeds. New England, as a whole, is not the place for short-horns. They do better on more luxuriant pastures. Besides, they are not well adapted to the wants of the small dairy farmer, especially since the modern improvements of this justly celebrated breed have taken all the milk out of them. For a region better adapted to raising beef, and on naturally rich feed, they are unsurpassed for beauty and symmetry of form, for size and early maturity, and consequently for the profits they yield to the breeder and the grazier.

In 1824, Mr. Powell, of Philadelphia, commenced the importation of short-horns, and continued to breed them with great enterprise and success for many years. He had frequent sales, some of his stock going into Kentucky, others to Ohio, and elsewhere.

But the great impulse given to the importation of short-horns, was the formation of the Ohio Company for Importing English Cattle, in 1834. The sum of $9,200 was subscribed in shares of $100 each, and agents sent abroad, who returned with nineteen head, selected from the herds of celebrated breeders, arriving in October of that year. They were kept together under the care of an agent, and the number was increased by other importations till 1836, when they were sold at public auction and scattered extensively over Ohio. A dividend of $280 per share was immediately declared on the ninety-two shares, amounting to $25,760. The following year they made another extensive importation, which sold rapidly and well. Immense benefits have resulted from these efforts.

The sketch given above of some of the earlier importations of short-horns, has been somewhat extended for the purpose of showing the gradually increasing and extending interest and enterprise in breeding, but since 1840, importations of this magnificent breed have so far multiplied, that it would be out of place to attempt to follow them. The cream of the finest and most celebrated herds in England has been taken to this country, without regard to cost. Fabulous prices have been asked, and five and six thousand dollars for a single animal have, in some cases, been paid, to which was added the cost of transportation. So successful, indeed, have the more recent efforts been, that England has sent over here to buy short-horns from us; and so admirably adapted to stock raising is the climate of Kentucky, that this fine breed has been improved there to such an extent, that very few of the last 150 cows selected from among the best in England, could win the prizes from those born and bred on our native soil.

These superior animals are not all held in the hands of a few. They are within the reach of thrifty farmers, who are now awake to the profit of raising cattle that will make as much beef at two or three years old, as a native at double that age.

It is proper to refer very briefly to the efforts made at various times to introduce and experiment with the other well-established English breeds, and the success which has attended these efforts.

In 1817, the Hon. Henry Clay, of Kentucky, made an attempt to introduce the Herefords into that state, by the purchase of two bulls and two heifers, at a cost of £105, or about $500. This was the first well authenticated importation of this breed of any note. The Herefords belong to the class of middle-horned cattle, and were indigenous to certain districts of England, where they were known as far back as tradition extends. They have undergone considerable changes within the last hundred years, commencing with the efforts of Tomkins, already alluded to—not however, by means of crosses with other races, but by careful and judicious selections.

In point of symmetry and beauty of form, the well-bred Herefords may be classed with the improved short-horns, arriving, perhaps, a little slower at maturity, though remarkably inclined to take on fat. They never attain to such weights, but they generally arrive at the Smithfield market at two or three years old, and so highly is their beautifully marbled beef esteemed, that it is eagerly sought by the butchers at a small advance, pound for pound, over the short-horn. Weighing less than the short-horns, they yield a larger weight of tallow, which is one reason of the preference for them. The short-horn produces more beef at the same age than the Hereford, but consumes more food in proportion.

They have never been bred for milking or dairy qualities, and no farmer would think of resorting to them for that purpose.

In 1824, Admiral Coffin, of the royal navy, presented the Massachusetts Society for Promoting Agriculture, a Hereford bull and heifer, bred by Sir J. G. Cottrel from the Tomkins stock. The bull was kept by the Hon. J. C. Bates, of Northampton, Mass., and left a numerous progeny, which was very highly esteemed in that neighborhood. The largest importation into this country was that of Messrs. Corning and Sotham, of Albany, N. Y., in 1840, consisting of five bulls and seventeen cows and heifers. Other importations of the same breed were added to this herd in subsequent years. The Hon. L. A. Dowley, of Boston, imported several animals of the same breed in 1852, a part of which were kept for some time on the State Farm at Westboro', Mass., and were afterward sold to Mr. John Merryman, of Baltimore Co., Md., who has one of the largest and finest herds of Herefords in the country.

It will be readily seen from the characteristics of the race, as stated above, that they would be ill adapted to the wants of New England farmers as a general thing. They are profitable for the grazier; though, in a country of extreme fertility, like many parts of the west, and capable of bringing the short-horns to their highest development and perfection, they might not, on the whole, be able to compete successfully with them.

The importation of Devons into this country has been more numerous. Indeed, there are some who assert that the native cattle of New England owe their origin chiefly to the Devons, since the cattle first brought into the Plymouth colony are pretty well known to have been shipped on the Devonshire coast. But that they were any thing like the modern Devons there is little evidence; they certainly have very few of the highest characteristics of that race left. The general impression has arisen mainly from the fact that many of the native cattle of New England are red, and that is the favorite color.

However this may be, the improved North Devon is a very different animal from any that could, at that day, have been procured on the coast of Devonshire, or, in fact, anywhere else. This race dates further back than its history goes. It has long been bred for beef, and for the working qualities of its oxen, which, perhaps, excel all other races in quickness, docility, and beauty, and the ease with which they are matched. But as milkers the North Devon cows do not excel, nor indeed do they equal, some of the other breeds.

Some years ago a valuable importation was made by Mr. Patterson, of Baltimore, Md., who has bred them with special reference to developing their milking qualities, and now they would be remarkable as dairy stock as compared with any other pure breed, but they are very different animals from the common modern improved Devons, the dairy qualities of which have been very much disregarded.

The North Devons were also imported by the Massachusetts Society for Promoting Agriculture, and were kept together for some time, and then disposed of. So far as size is concerned, they are better adapted to New England farms than either the short-horns or the Herefords, while the form and color are so beautiful as to make them admired by many. But the milking qualities having been to a considerable extent bred out of them, especially those more recently imported, we have little to gain by preferring them over our native stock. They are good for beef, for which purpose they are chiefly raised in their native country, but the production of beef throughout most of the older sections of the country is an entirely secondary object. They are good for labor, on account of their quickness and ease of motion, but New England has equally good working oxen in its natives. They give rich milk, but the Jerseys give richer.

The Ayrshires and the Jerseys are, and have for a long time been bred with special reference to the dairy. The former, though

a comparatively recent breed, were early imported into this country, and, I think, have, as a whole, proved very satisfactory, particularly as giving valuable crosses with our common stock. Grade Ayrshires are among the best animals for the use of small and dairy farms, and the cross-breds are, for all practical purposes, equal to the pure breds.

One of the cows originally imported by John P. Cushing, of Massachusetts, gave in one year 3,864 quarts of milk, beer measure, being an average of over ten quarts a day for the year; and the first Ayrshire cow imported by the Massachusetts Society for Promoting Agriculture, in 1837, yielded sixteen pounds of butter a week for several weeks in succession on grass-feed only. Our climate is not so favorable to the production of milk as that of England and Scotland. No cow, imported after having arrived at maturity, could be expected to yield as much under the same circumstances, as one bred on the spot where the trial is made, and perfectly acclimated. The Ayrshire cow generally gives a larger return of milk for the food consumed than a cow of any other breed.

Within the last ten years the Jerseys have been extensively imported into this country by the Massachusetts Society for Promoting Agriculture, and by many individuals in New England, New York, and Maryland. They have their place among us, but it is not on the majority of our farms. They give richer milk, and that with greater uniformity, than any other known breed, but the quantity is usually small, which would not do for the milk dairyman. They are usually small in body, and rather large consumers. On a dairy farm devoted exclusively to the making of butter, an infusion of Jersey blood is highly desirable. One or two Jerseys in a herd of twenty will often make a perceptible difference in the quantity and richness of butter. For gentlemen in the vicinity of cities, who keep but one or two cows to supply their own table, they are also especially adapted.

They have consequently multiplied rapidly in the vicinity of cities on the Atlantic seaboard. In 1853 there were, for instance, but about seventy-five pure-bred Jerseys in Massachusetts; now they number several hundred, while the grades are innumerable, many of them proving to be very fine.

The influence which the introduction of superior foreign stock has exerted, has not been confined to their own intrinsic merits, nor to the actual improvement which they have effected by means of crossing upon the common stock of the country. It has led to better treatment of native stock, partly by increasing, to some extent, the interest in cattle and the knowledge of their wants and requirements, and partly from the fact that there was a general disposition among the mass of farmers to say that if the natives were kept as well, they would outstrip the fancy stock.

But still the improvement in the common stock of the eastern and middle states, or those portions devoted to the dairy and other stock interests than the raising of beef, over and above what can be ascribed to better treatment, has been small compared with what it has been in those states devoted more exclusively to grazing. During the past ten or twelve years, for example, the live stock of Ohio has increased in valuation —according to the official returns made to the state auditor—more than two hundred per cent., while, in the same time, no class of stock has increased in numbers one hundred per cent. A part of this, to be sure, may be fairly ascribed to an increased demand for stock, and a consequent higher value, but there can be no question that intrinsically better animals have superseded the inferior native stock to a considerable extent. The number of horned cattle in that state, in 1836, was 372,866, valued at $2,982,928. In 1846 the number had increased to 920,995 head, and the valuation to $7,527,123. In 1850 the number was 1,103,811, and the valuation $11,315,560. In 1857 the number was 1,655,415, and the valuation was $21,662,223. The ratio of increase in value has been greatly accelerated since the means of communication by railway have so greatly increased the facilities for information. When the first great importation and sale was made, in 1834-6-7, it was not accessible to the mass of cattle breeders, and acquired more of a local than a general reputation. What is true of Ohio is true to nearly an equal, if not even greater extent of most of the other western states.

While speaking of the different objects for which cattle are kept in various parts of the country, it may be interesting to compute the actual products, per cow, in butter and cheese in the several sections. According to the census of 1850, the average number of pounds of butter produced per cow, per annum, in the various states, was as follows:—

	lbs. per cow.		lbs. per cow.
Florida	5	Maryland	43
Texas	10	Indiana	45
Georgia	13	Iowa	47
South Carolina	15	Delaware	56
North Carolina	18	Wisconsin	56
Alabama	18	Massachusetts	62
Arkansas	19	Ohio	63
Mississippi	20	Maine	69
Tennessee	33	Michigan	70
Missouri	34	New Hampshire	73
Virginia	34	Connecticut	75
Rhode Island	34	Pennsylvania	75
Kentucky	39	New Jersey	79
Louisiana	41	Vermont	83
Illinois	42	New York	85

Some of the states, like New York, for instance, sell vast quantities of milk in its natural state, and yet the quantity of butter per cow will be found to be large compared with those states where cattle are kept more especially for beef. To conclude that the stock of Kentucky, Illinois, or Ohio is inferior to that of New York because the yield of butter per cow is inferior, would be premature. The objects for which the stock of those states is kept are different, and for the purposes of grazing, the cattle of the western states may be far better adapted than any other would be.

Let us now see what is the amount of cheese annually produced per cow in the several states. In some of them it appears to be infinitesimally small. The list stands as follows, beginning with a hundredth part of a pound:—

	lbs. per cow.		lbs. per cow.
Louisiana	.01	Indiana	2.25
South Carolina	.02	Illinois	4.00
Maryland	.04	Iowa	4.00
Alabama	.13	Wisconsin	6.00
Georgia	.14	Mississippi	10.00
Delaware	.16	Rhode Island	11.00
Florida	.24	Maine	18.00
Arkansas	.30	New Jersey	30.00
Texas	.40	New Hampshire	31.00
North Carolina	.43	Ohio	36.00
Tennessee	.70	New York	53.00
Kentucky	.86	Massachusetts	54.00
Missouri	.89	Vermont	59.00
Virginia	1.37	Connecticut	62.00

Vermont produced more cheese than all other states put together except New York, Ohio, Maine, Connecticut, Massachusetts, and New Hampshire, and that, too, from 146,128 cows. The total number of pounds of cheese produced in the United States, as shown in the census of 1850, was 105,535,219, or about four and a half pounds to each individual of the whole population. The export for that year was 10,361,189 pounds, which left for consumption in this country, not far from four pounds for each individual. If we suppose the consumption to be equal in all the states, it would appear that only seven of the states produce their own cheese; these are Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, and Ohio. If now we consider the proportion of the number of cows kept in the various states to the population, it will throw additional light on the mode and object of keeping stock; for while, in many of the states, the products in milk, butter, and cheese are husbanded with the greatest care, the farms are comparatively small, and the number of cows an individual can keep and manage is limited, in others a large number are kept and allowed to roam over the heavy and luxuriant pastures, to grow and fatten, no account whatever being made of their dairy products.

The number of cows per individual was as follows, stated in decimals:—

Maine	.22	Alabama	.29
New Hampshire	.29	Florida	.83
Vermont	.46	Mississippi	.35
Massachusetts	.13	Louisiana	.20
Rhode Island	.13	Texas	1.01
Connecticut	.23	Kentucky	.25
New York	.30	Tennessee	.24
New Jersey	.24	Arkansas	.44
Delaware	.21	Missouri	.33
Maryland	.14	Ohio	.27
Virginia	.22	Indiana	.28
North Carolina	.25	Illinois	.34
South Carolina	.28	Iowa	.24
Georgia	.36	Wisconsin	.21

The products from stock might be stated in another interesting point of view as follows: The northern states, comprising New England, New York, New Jersey, and Pennsylvania, with 166,358 sq. miles, and a population of 8,626,852, keeping 2,058,604 milch cows, produced, according to the last census, 251,593,899 pounds of butter and cheese, valued at $25,159,389. They kept, also, 494,280 oxen, and 1,834,297 other cattle, not, of course, including horses, sheep, or swine. At the same time the western states, comprising Ohio, Michigan, Illinois, Indiana, Wisconsin, Iowa, California, Minnesota, and the territories, with an area of 1,918,216 sq. miles and a population of 4,900,369, had 1,363,253 milch cows, and manufactured 98,266,884 pounds of butter and cheese, valued at $9,826,688. They had also 341,883 oxen, and 2,236,056 other cattle. The southern states, comprising Delaware, Mary-

land, Virginia, North and South Carolina, Georgia, Florida, Mississippi, Alabama, Louisiana, Texas, Arkansas, Tennessee, Kentucky, and Missouri, with 851,448 sq. miles and a population of 9,664,656, had 2,963,237 milch cows, and manufactured 68,634,224 pounds of butter and cheese, valued at $6,863,422. They also had 2,835,358 oxen, and 5,632,717 other cattle. These aggregates are computed by Mr. Ketteli, the author of a valuable treatise on *Southern Wealth and Northern Profits*, New York, 1860, and they show that, contrary to the opinion quite prevalent in some of the northern states, the south is largely engaged in raising and keeping stock, an interest which might, indeed, be very greatly extended, owing to the unrivalled advantages of climate.

It is unfortunate that the number of milch cows and oxen was not given in the census of 1840. We have, consequently, no accurate details with regard to the increase of particular classes of stock; but we know that the rate of increase during that decade was about twenty per cent. The aggregate number of neat cattle was given in 1840 at 14,971,586, and in 1850 at 18,378,907. The amount of butter produced in 1850 was 313,266,962 pounds, and that of cheese 105,535,219 pounds; neither of which were given in 1840 as separate items. We had, in 1850, about two millions of working oxen, or more accurately, 1,700,744; and of other cattle, 10,293,069. The amount invested in neat stock, it will thus be seen, cannot be less than two hundred millions of dollars at the present time.

A branch of farming involving so vast an amount of capital cannot be considered of small importance. Its development is worthy to command the highest intelligence and the most consummate skill, and its rewards are ample and encouraging.

HORSES.

That the horses in this country have undergone a vast change and improvement during the last century—or, rather, during the last half century—there can be no reasonable doubt in the mind of any one who will take the trouble to investigate the history of this animal. A simple, though complete change of the principal uses to which horses are put, would naturally have produced a change in the horses themselves, without any well-directed effort at breeding. For, as we have seen in our previous sketch of the condition of things during the last century, which continued with slight local modifications even into the present century, the chief means of carrying on our inland business, including a vast amount of heavy transportation, was the horse. The roads were in a most wretched condition, compared with the admirable roads of the present day, except, of course, those in the more thickly settled portions around the larger centres of population. They were seldom built of any thing but the natural soil thrown up from the sides, and often not this. The forest was felled, and the ground left for many a thousand miles without the precaution of making any side ditches at all, and over such a pathway the freight of a great part of the country was to be moved, in wagons made so as to be capable of the hardest usage. Over such roads light carriages would have been comparatively useless, and a speed now seen every day, would have been unsafe for them. The mail contracts over a very large part of the country were made at a speed lower than four and five miles an hour, and heavily loaded teams, and heavy mail and passenger coaches, kept the roads for a considerable part of the year in a state not calculated to encourage fast driving. The farmer had to haul his produce often long distances to market, and needed a heavy kind of horse. Now he has a market almost at his very door. The long line of lumbering teams is rarely seen. The old mail coach has little left to do. As many horses are now required, and even more than before, but their work is very different. The vast improvements in agricultural implements have also lightened the labors of the horse. Our wagons are of lighter construction, our ploughs run easier, our lands are freer from rocks and stumps, and quick, hardy horses often take the place of oxen, and of the larger, heavier, and much slower horses of half a century ago.

The farmer or the country gentleman who is accustomed to ride in the cars at the rate of thirty or forty miles an hour, would not be satisfied to step out of them and have to travel at the rate of five or six miles an hour. So that the purposes for which horses are now wanted are, as a general thing, very different from what they used to be. Speed, which was formerly little required, is now considered an indispensable requisite in a good horse, and though our horses are made

up, as we shall see, of almost, if not quite as great a variety of blood, and with as little regard to the true principles of breeding, as our native cattle, yet they are, in many respects, distinct from all other horses. They possess, in many sections of the country, a surpassing degree of speed and power of endurance, the result, in part, of the altered condition of things, and greatly, also, of more attention to breeding and training.

The first horses taken from Europe to the western continent, were brought over by Columbus in his second voyage, in 1493, and the first introduced into any part of the territory now comprised within the United States, were brought over and landed in Florida by Cabeça de Vaca, in 1527. These numbered forty-two, but all perished for some cause or other soon after their arrival. The horses found wild on the plains of Texas and the western prairies are, probably, descendants of the fine Spanish horses abandoned by De Soto on the failure of his expedition and the return of his disheartened adventurers. In 1604, a French lawyer, M. L'Escarbot, brought over horses to Acadia, and from there the French, who extended their settlements into Canada in 1608, took the horses which, probably, laid the foundation of what are now known as Canadian ponies, having, no doubt, lost much of their original size by the severity of the climate and limited summer forage. Though degenerated in size, they still show traces of Norman blood, from which they probably sprang.

In 1609 six mares and a horse were taken to the settlement at Jamestown, in Virginia, and in 1657 the exportation of horses from that colony was strictly prohibited. In 1629-30 horses were introduced into the colony of the Massachusetts Bay by Higginson. These were brought from Leicestershire, in England. The Dutch West India Company had imported horses from Flanders, probably, into New York, in 1625, and it is thought by some that the Conestogas derive their origin from this source. The French, who settled in Illinois in 1682, had many Canadian horses, which were allowed to run on the extensive "ranges" in their vicinity.

Thus we see, in part, the varied sources from which the native horses of this country came. To these were added, from time to time, in the middle and southern states, more or less of thorough-bred, or racing stock, which essentially modified the stock with which it became mixed. The horses of New England, especially of Vermont and Massachusetts, have been used chiefly as roadsters and for general utility. They possess the most admirable qualities of power, speed, and endurance, and, for quick work and travel on the road, they are unsurpassed by any horses in the world. Low, in his "History of Domestic Animals," says of the people of this country: "They prefer the trot to the paces more admired in the old continent, and, having directed attention to the conformation which consists with this character, the fastest trotting horses in the world are to be found in the United States."

Among the changes which have been effected within the last fifty years in the horses of New England, on which the high encomium given by Prof. Low is chiefly based, none, certainly, have been more marked than the increase of speed. Fast trotting was scarcely known in the time of the old "Justin Morgan," nor was the speed of the horse considered of any special money value till the invention of the modern light buggy and the improvement of the roads, already alluded to. This quality has now become essential to the convenience and comfort of nearly all classes of society. Most people want a horse to go off easily at the rate of eight, ten, or twelve miles an hour, and the horses that do it are now very common, whereas formerly, they were only the very rare exception to the general rate of speed. A demand very soon creates a supply, and the farmer who breeds horses knows his own interest well enough to study the tastes of the community, and to breed accordingly. In point of speed, therefore, there can be no question that a very great increase has been attained by careful breeding, particularly within the last twenty years. In other points some improvement has been made, such as general good qualities of style, action, temper, form, constitution, and endurance. The aggregate money value has been greatly increased, because the number of fast horses and the general average of intrinsic good qualities in horses has been increased, and these command their value. But, perhaps, the tendency has been to congregate the best horses in the cities and large towns, and to draw them from the country. Few farmers want to keep a horse for farm and general purposes, that will bring from two or three to five hundred dollars.

Two distinct varieties of horses are now, and have for the last few years been favorites for the road. Neither of these can have any pretensions to the claim of being a distinct race, though they have both become distinct families, well known under their respective names. The peculiarities of both are so well marked, as not to deceive the practised eye. Of these, the Morgan has been alluded to, as deriving its name from the owner of the founder of the family, or the old "Justin Morgan," foaled in West Springfield, Mass., in 1793. The sire of this remarkable stallion is supposed to have been "True Briton," a half thorough-bred. The old "Justin Morgan" soon went to Vermont, 1795, and there laid the foundation of the Morgans of that state, producing the celebrated "Bulrush," "Woodbury," and "Sherman" Morgans, all of which added vastly to the wealth of the breeders and farmers of that section. The descendants of these horses have been spread far and wide. The "Justin Morgan" was a small horse, only about fourteen hands high, and weighing only about nine hundred and fifty pounds. The Morgan horse of the present day is of somewhat larger size, and usually varies from nine hundred and fifty to ten hundred and fifty pounds. He is remarkable for compactness of form, strength, and docility; and for the infinite variety of purposes for which the New England horses are wanted, is probably unsurpassed. He is much sought after for use on the road, and in omnibuses, hacks, and lighter carriages.

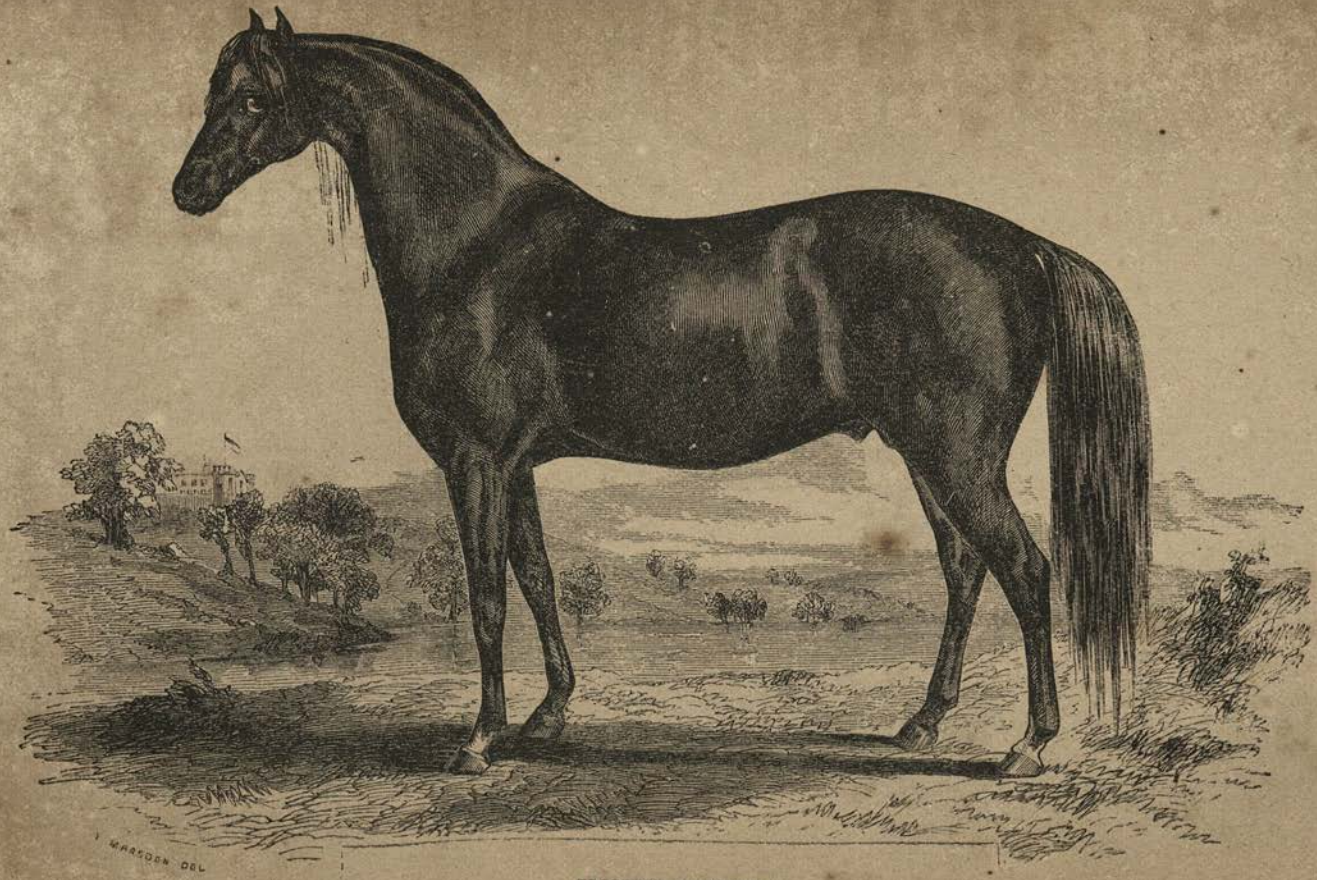
The other family, also widely known, not only in New England, but throughout the country, is the Black Hawk. The founder of this family was a horse of that name, celebrated for transmitting his qualities to his offspring, as well as for his great speed as a trotter. He was kept in Vermont till his death in 1856, at the age of twenty-three years. As roadsters, the Black Hawks are often very excellent, possessing a high and nervous style of action, an elastic step, and a symmetrical and muscular form. It is not too much to say that those two classes of horses have added many millions of dollars to the value of the horses of this country. They infused a new spirit into the business of breeding in New England, and had an effect on the enterprise of the farming community, similar to that which the introduction of short-horns had on the general improvement of the stock of the western states.

The style of horse which has been most imported and bred in the southern states, especially in Maryland and Virginia, is quite different. The cavaliers cultivated and encouraged the sports of the turf, and the thorough-bred was early introduced, and bred with much enterprise. Good saddle horses, which in New England are comparatively rare, are very common at the south, where the manly and healthful exercise of horseback-riding has for a long time been almost universally practised, both as a pastime and a common mode of travelling. The interest in breeding thorough-bred horses has been kept up in Kentucky, also, and some of the most renowned running horses of this country hail from that state.

There is a difference of opinion among good judges of horses, as to whether the cross of the thorough-bred horse on the common horse of the country would effect any improvement when viewed from the stand-point of general utility. For special purposes, as for the production of good saddle horses, the value of this cross would, no doubt, be conceded. But the gait most highly prized and most desirable for general utility is the trot, and the mechanical structure best adapted to trotting and running is quite different. At the same time it must be admitted, I think, that some of our best trotters have had strong infusions of thorough-bred blood. Some say, however, that the form of the thorough-bred has been changed, and so far as compactness, muscle, and endurance are concerned, degenerated. This is an opinion merely, which would apply with greater force to the general average of thorough-breds or racers in England than in this country. The experiment is undergoing full and fair trial in New England at the present time.

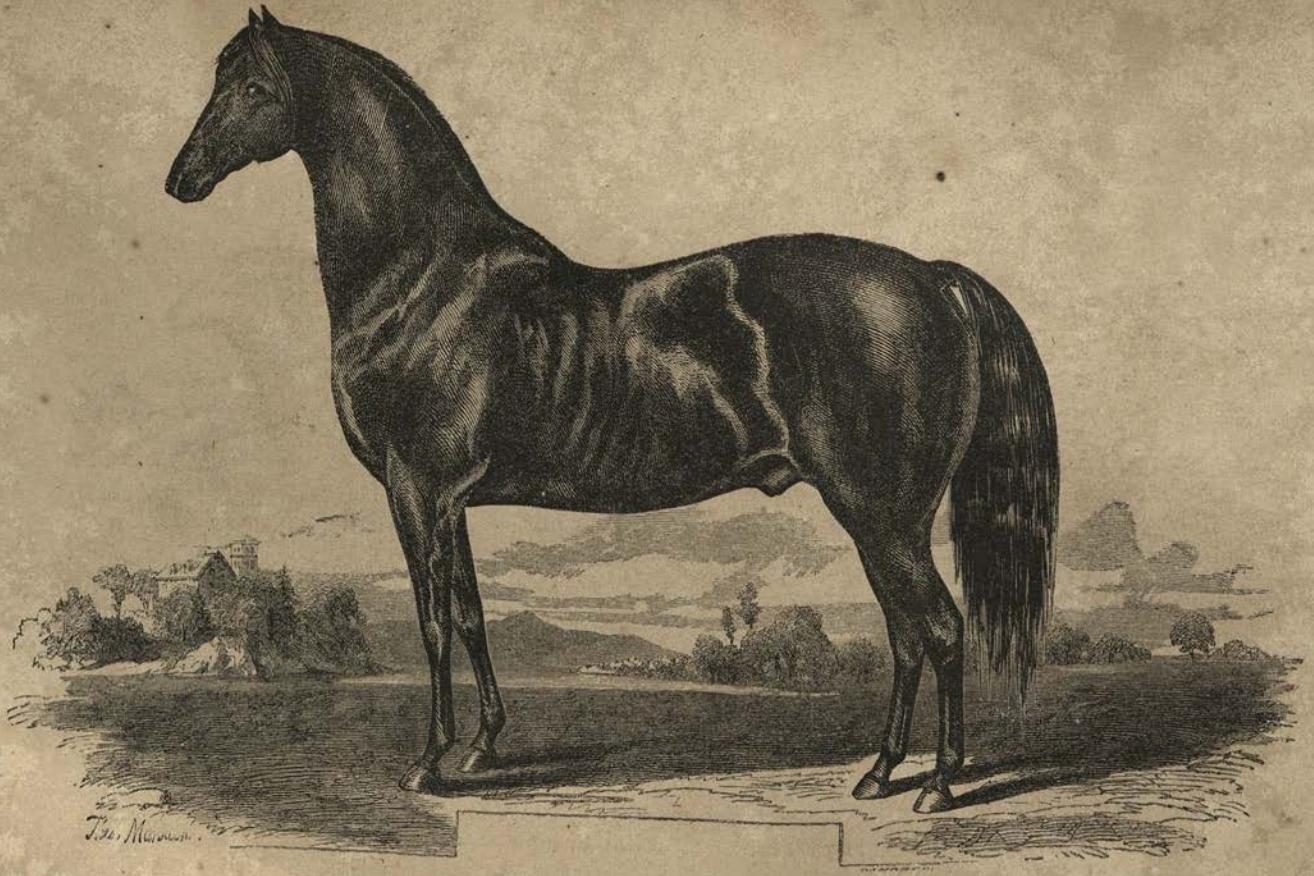
The Conestoga is a large and very heavy breed of horses, often met with in the middle states, and used mostly for the purposes of slow draught in the drays of our large towns and cities.

But while it is evident that the intrinsic value of our American horses has been vastly improved, their aggregate number has also been greatly increased during the last fifty years. Unfortunately, the census of 1840 did not take an account of horses by themselves, and we cannot tell, with exactness, the ratio of increase from that time to 1850, when the number of horses, exclusive of those of large cities and large towns, which were not returned, was 4,336,719.



TROTTING CHILDERS.

Sired by old Black Hawk. Owned by Lambert Maynard, Bradford, Mass. Engraved for C. L. Flint's Report to the Massachusetts Legislature.

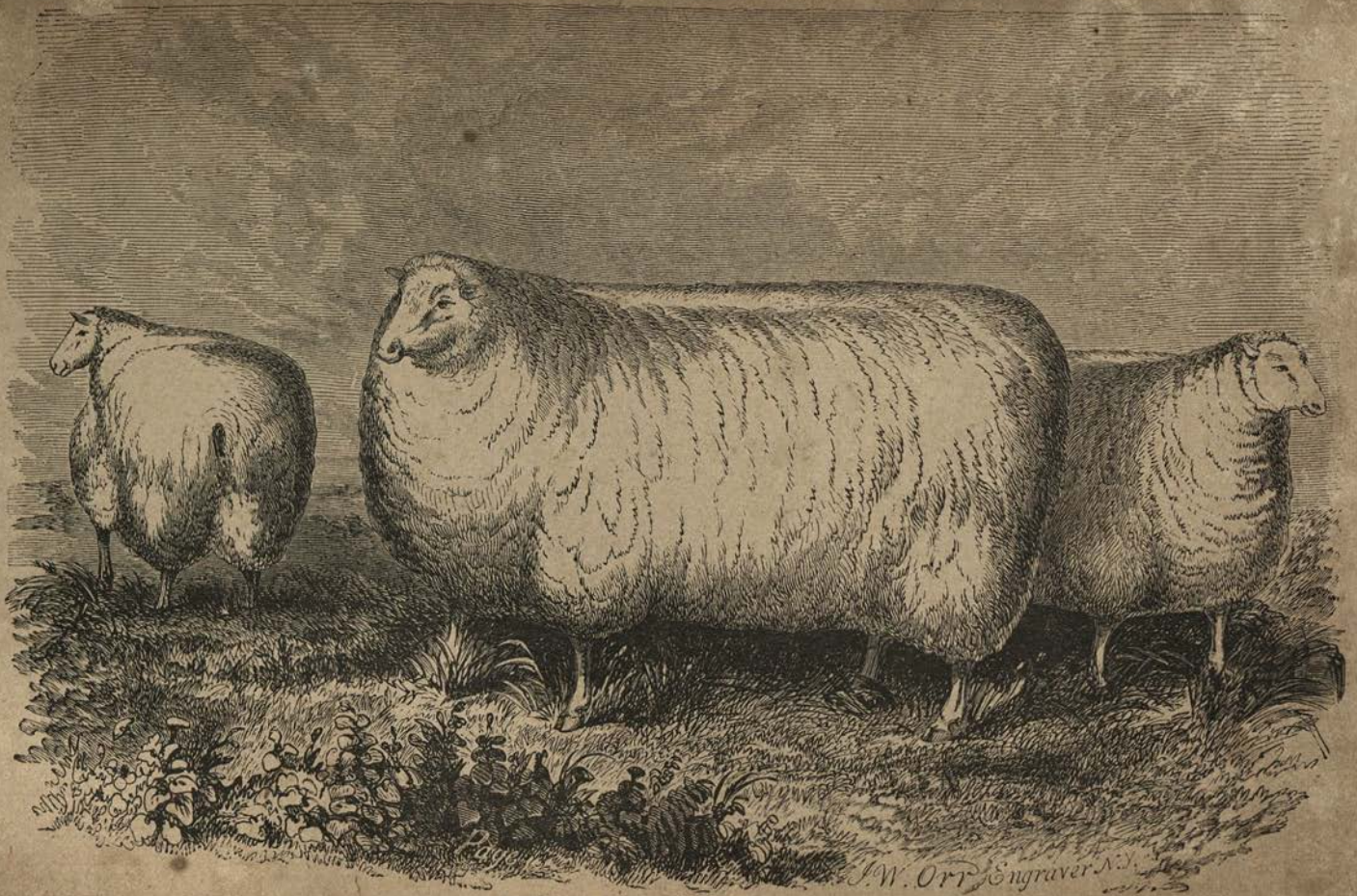


PETERSHAM MORGAN.

Engraved for Fifth Annual Report of the Secretary of the Massachusetts State Board of Agriculture. First prize at the Massachusetts State Fair, 1857.

COTSWOLD SHEEP.

Owned by Thos. J. Field, Northfield, Mass. Copied by permission from Fifth Annual Report of C. L. Flint to the Legislature of Massachusetts.



IMPROVED KENTUCKY SOUTH DOWNS.

The number of horses, mules, and asses, in 1840, was 4,335,669, while the aggregate number of these classes in 1850 was 4,896,050, that of mules and asses being 559,331. Why the number of horses owned in the many large cities of the country, and constituting no small item of the national wealth, was not included in the returns, I am not fully informed. From the numbers stated above, it appears that there is about one horse to every five persons in the United States. New York had one horse to seven inhabitants; Pennsylvania one to six and six-sixteenths; Ohio one to four; Kentucky one to three free inhabitants. In Ohio and the new states of the north-west, the increase in the number of horses kept pace with that of the population. In the other states, owing partly, probably, to the multiplication of railroads, the increase was in a somewhat slower proportion. The number of horses in the United States is more than three times as large as in Great Britain.

The south, by the last census, had 2,044,377 horses; the west had 1,220,703; and the north had 1,073,639.

SHEEP.

Another branch of farming which has been subject to more or less vicissitude, is that of sheep husbandry. The first sheep imported into this country were, probably, those taken into Virginia in 1609. They came from England, and thrived so well that in 1648 they had increased to three thousand.

About the year 1625, some sheep were introduced into New York by the Dutch West India Company. These came from Holland, and, together with others which arrived in 1630, proved to be too much of a temptation to dogs and wolves, for it is stated that in 1643 there were not more than sixteen sheep in the whole colony.

Sheep were brought into the Plymouth colony, and that of the Massachusetts Bay, very soon after the settlement. They were kept on the islands in Boston harbor as early as 1633, and in 1635 the number of sheep in the New Hampshire settlement, near Portsmouth, was ninety-two. In 1652 the number of sheep in and around Boston had largely increased, since there were four hundred in Charlestown. In 1660 they were introduced upon the island of Nantucket, and the raising of wool grew up to be of some importance there.

Sheep husbandry, in the earlier history of the country, was carried on very differently, for the most part, from what it has been more recently. There were few extensive flocks, but in the days of homespun it was very common for the farmer to keep a number sufficient for home consumption. In fact, it was almost a matter of necessity. But the old native sheep was a coarse, long-legged, and unprofitable animal. The first fine-woolled sheep introduced into the country were those brought from Spain by Mr. Wm. Foster, of Boston, in 1793. He speaks of them as follows:—

"In April, 1793, on returning from Cadiz, where I had been passing several years, I brought out an original painting, by Murillo, and three merino sheep—two ewes and a ram—the export of which, at that time, was severely prohibited, and attended with much difficulty and risk. We had a long passage—seventy-five days—and the sheep were in a dying condition. Fortunately, there was on board a Frenchman, that had been with the Spanish shepherds, who cured them by administering injections. Being about to leave this country for France, soon after my arrival in Boston, I presented these sheep to Mr. Andrew Craigie, of Cambridge, who, not knowing their value at that time, 'simply ate them,' as he told me years after, when I met him at an auction, buying a merino ram for $1,000."

Another small importation of merinos was made in 1802, and again in 1809 or 1810, about which time a complete merino fever ran through the whole farming community, which had its day, and then subsided.

The embargo of 1808 led many to turn their attention to wool growing, and fine wool soon rose to the high price of $1.50 and $2.00 a pound. In 1809-10, no less than 3,650 merinos were imported and distributed throughout the United States. The importance of these early importations can hardly be overestimated. They furnished our woollen manufactories with the raw material at a time when it would have been extremely difficult to obtain it from abroad.

In the ten years from 1840 to 1850, the sheep of the United States increased two and a half millions, and numbered about twenty-two millions, or more accurately, 21,723,220. But in New England there was a remarkable falling off from 3,811,307 in 1840, to 2,164,452 in 1850, making a loss of forty-five per cent., while in the five sea-board

states of New York, New Jersey, Pennsylvania, Delaware, and Maryland, the decrease was twenty-two per cent. The increase was chiefly in the southern and western states. The production of wool steadily increased, for in 1840 we raised 35,802,114 pounds, valued at $11,345,318; in 1850 we raised 52,516,959 pounds, worth $15,755,088; and in 1855 we raised 61,560,379 pounds, worth $23,392,944, being a gain of forty-six per cent. But as some evidence of improvement, it may be stated that the average weight of fleece increased from 1.84 pounds in 1840, to 2.43 in 1850.

Since the opening of the great railway lines to the west, two prominent causes have operated to diminish the number of sheep, and attention to this branch of farming, in New England. One was, that previous to that time, we had rushed into fine wools, or merino sheep, almost worthless for the market. When, therefore, the competition of the great west was let in upon us, with the facilities for transporting wool, we had little left but a parcel of carcasses worth about as much as so many cats.

Massachusetts cannot and ought not to attempt to raise wool, which can be brought from Ohio, and in fact from the extreme west, or from Texas, at about a cent a pound freight. And so, instead of changing the breed, and raising the south-downs, or the cotswold, or some other adapted to the market, the farmer discarded sheep altogether, thinking they didn't pay, and the kind of sheep he had did not.

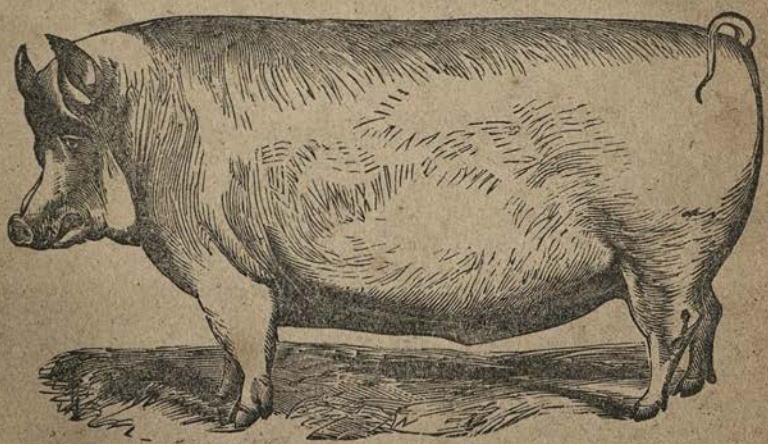
Another reason was the extreme annoyance of dogs, which would often destroy the profit of a whole year in a single night. We are not, therefore, surprised to find that the number of sheep in Massachusetts declined from 378,226 in 1840, to 188,651 in 1850, and to 145,215 in 1855. This last evil has now been remedied in some of the eastern states, Massachusetts taking the lead, by a law designed for the protection of sheep against dogs, which offers great inducements for entering again upon the business of sheep raising, and many are now availing themselves of it. Growing mutton and lamb for the market at any thing like the present high prices of those articles in the eastern market, is one of the most profitable, and at the same time agreeable branches of farming. Our provision markets must be supplied from a nearer source than the prairies of the west; and in this particular the eastern farmer need fear no competition. And the same holds good to a great extent along the Atlantic coast, or in the vicinity of the great markets.

In the meantime the capacities and the adaptation of the climate of the south for the raising of wool are being more and more appreciated, and that section is growing more wool. It has been shown by the experience of the last ten years, that by proper attention to breeding, the hilly portions even of the extreme south may be profitably devoted to the production of wool. At the World's Fair at London, in 1851, the fleece that commanded the highest premium for the fineness and beauty of staple, was grown in Tennessee. Germany, Spain, Saxony, and Silicia were there in strong and honorable competition. "Nature," says the owner of the premium fleece, "gave me the advantage in climate, but the noble lords and wealthy princes of Europe did not know it, neither did my own countrymen know it, until we met in the Crystal Palace of London, before a million of spectators. While their flocks were housed six months in the year, to shelter them from the snow of a high latitude, and were fed from the granaries and stock-yards, mine were roaming over the green pastures of Tennessee, warmed by the genial influence of a summer sun; the fleece thus softened and rendered oily by the warmth and green food, producing a fine, even fibre."

So that whether it be north or south, east or west, sheep are, on the whole, the most valuable of the domestic animals kept on our farms, on account of their small cost and large returns, especially since they are well known to improve the land on which they graze. The total product of wool in the United States, as shown by the census of 1850, was 52,516,959 pounds. The amount had increased in nineteen years, or from 1832, only 5,599,633 pounds, and that, too, with a high duty on wool ranging from four cents a pound, and forty per cent. *ad valorem*, to thirty per cent. *ad valorem*. But in Great Britain the production was 275,000,000 pounds—an increase in twenty-two years, with a duty to protect and encourage the wool-grower, of 163,376,271 pounds. The value of wool imported into this country in 1850 was $1,681,691, while the value of this article exported that year was $22,778, so that the excess of value of imported over that exported was $1,658,913, all of

SOUTHERN PINE WOODS HOG.

WESTERN BEECH NUT HOG.



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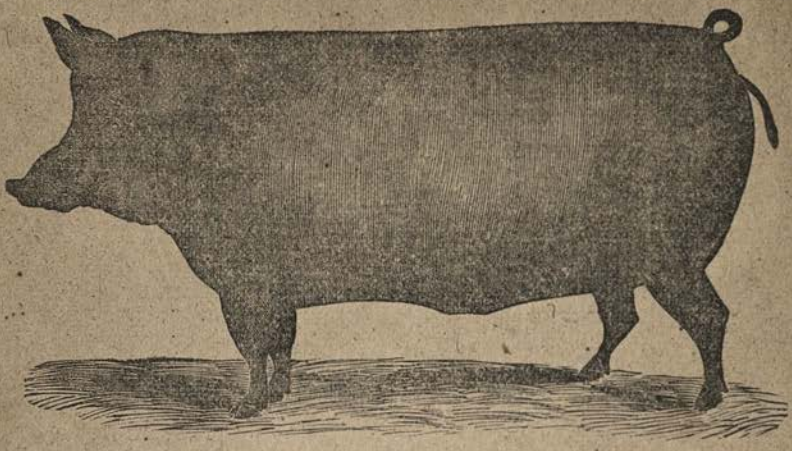

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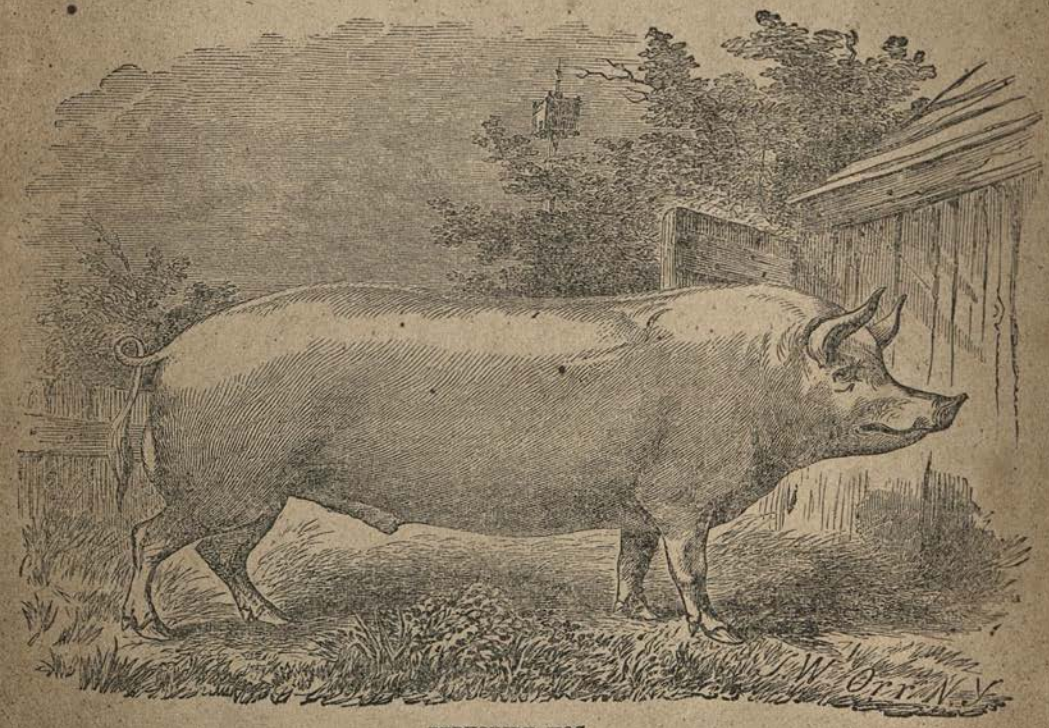


BERKSHIRE HOG.

which might, and ought to have been saved to the country. But while we imported so large an amount of foreign wool, the value of woollen manufactured articles imported was no less than $16,259,649. The value of such articles exported by us was only $171,300, leaving an excess of imported woollen articles, of the enormous sum of $16,088,349. Putting this and that together, we find the value of raw and manufactured wool imported in 1850 over that exported, $17,747,262. The value of raw wool manufactured in New England in 1850 was $16,055,233, and the number of pounds used was 43,118,059. Probably the census of 1860 will show a very considerable improvement over that of 1850. The immense facilities for wool-growing in Texas, and some other localities, were not sufficiently known to be appreciated ten years ago.

Let us see where the wool we did raise in 1850 was actually produced. The south, including Maryland, Delaware, the District of Columbia, Virginia, North Carolina, South Carolina, Georgia, Alabama, Louisiana, Florida, Texas, Missouri, Mississippi, Kentucky, Tennessee, and Arkansas, comprising an area of 851,448 sq. miles and a population of 9,664,656, raised 6,821,871 sheep, and 12,797,829 pounds of wool, valued at $3,839,348.

The west, comprising Ohio, Michigan, Illinois, Indiana, Wisconsin, Iowa, California, Minnesota, and the territories, having an area of 1,918,216 sq. miles and a population of 4,900,369, had 7,396,331 sheep, and produced 17,675,129 pounds of wool, valued at $5,302,538.

The north, comprising New England, New York, New Jersey, and Pennsylvania, an area of 166,358 sq. miles and a population of 8,626,852 souls, had 7,505,018 sheep, and raised 21,972,082 pounds of wool, valued at $6,591,624.

To conclude, therefore, we have made some decided progress, both in the numbers and in the intrinsic value of our flocks. The number of skilful breeders is increasing, and the different sections of the country understand better the capacity and adaptation of their own localities for the production of mutton and lambs for the market, or the growing of wool for the manufacturer.

SWINE, AND THE PORK BUSINESS.

Few animals are so susceptible of change and improvement in the hands of the skilful breeder as the hog. This animal comes to maturity in so much less time than the horse or the cow, and increases with so much greater rapidity, as to offer larger inducements to improve and perfect it.

Ferdinand de Soto probably brought the first swine into this country, in 1538. These came from Cuba, and were landed in Florida. They were probably descended from some brought over by Columbus in 1493. The Portuguese, it is well known, brought swine into Nova Scotia and Newfoundland as early as 1553, where they rapidly multiplied.

The London Company imported swine into Virginia in 1609. They increased so fast, that in 1627 the colony was in danger of being overrun with them, while the Indians fed on pork from the hogs that had become wild from running at large in the woods.

Meantime, they were introduced into the Plymouth colony in 1624, by Gov. Winslow, and into New Netherlands—now New York—in 1625, by the Dutch West India Company. In all the colonies, as well as in the French settlements in Illinois, they were allowed to run at large with considerable freedom, and fed on mast, though it was soon found that pork fed on Indian corn was much sweeter than that mast-fed.

It is not probable that any special attention was paid to breeding, with reference to improving this animal, till near the close of the last century. The first improvements effected that excited any considerable interest, seem to have been produced by a pair of pigs sent from Woburn Abbey by the Duke of Bedford to General Washington. Parkinson, the Englishman to whom they were entrusted for delivery to the general, was dishonest enough to sell them on his arrival in this country. They were long known as the Woburn, and, in some sections, as the Bedford hog, and were originated by a fortunate cross of the Chinese and the large English hog. There is no doubt they were splendid animals, with many fine points, small bones, deep, round barrel, short legs, feeding easily, and maturing early, and often weighing at a year or a year and a half old, from four to seven hundred pounds, with light offal, and the first quality of flesh. They were mostly white—somewhat spotted. They were very common at one time in Maryland, Delaware, and Virginia, and were bred somewhat extensively by Gen. Ridgeley, of Hampton—a fine

country seat in Baltimore county, Md.—who sent a pair of them to Col. Timothy Pickering, of Hamilton, Mass., who bred them till they became quite noted over a wide extent of country. They are now extinct. It is worthy of remark that the Byfield breed originated in the same way, by a cross of the Chinese and the common hog, bred by Gorham Parsons, in Byfield, Mass. This breed became famous, and was very much sought after for many years, and is even now found in Ohio.

Previous to the introduction of the Woburn hog, the classes of swine that had prevailed in the eastern and middle states were coarse, long-legged, large-boned, slab-sided, and flab-eared, an unprofitable and an unsightly beast, better calculated for subsoiling than for filling a pork barrel. An effort had been made to improve them, about fifty years ago, and before the valuable breeds above alluded to had become generally known, by the introduction of an animal commonly called, at that time, the Grass-fed hog, which appeared about the time of the introduction of merino sheep, and were often sneered at as the "merino hog." Chancellor Livingston took very great pains to disseminate them, if, indeed, he did not originally import them. They are said to have been an exceedingly well-formed beast, with small heads, round bodies, compact and well made, legs short and small-boned, spotted in color, with a kind of dusky white on a black ground. As they were looked upon as an innovation, they had to encounter the force of public sentiment, but their intrinsic good qualities finally prevailed, and they became popular.

Since that period the introduction of many varieties of superior hogs, both from Europe and Asia, has effected a very marked improvement in the common hog of the present day, though it has been a too frequent practice to breed indiscriminately. A pure breed, like the Suffolk, the Berkshire, or the Essex, may be used to cross for a specific purpose, but the pure breed ought again and constantly to be resorted to, or the result will be likely to be unsatisfactory. It requires great skill and judgment to breed judiciously, and it ought to be made a special branch of farming to a greater extent than it usually is, in order to insure the preservation and perpetuation of purity of blood.

It is well settled that neither the eastern nor the middle states can compete successfully with the west in the raising of swine and the production of pork on a large scale. The cost of grain in those sections of the country would prevent it. A limited number of hogs can be kept to advantage in a section of small farms, sufficient to consume and thus economize the refuse of the dairy and other farm products, that would otherwise be liable to waste, but beyond this, the keeping of swine is not only not profitable, but an absolute bill of expense.

But in Ohio, Kentucky, Illinois, Indiana, and other states where corn can be raised with little labor, and in unlimited quantities, the cost of pork is trifling compared with the keeping of swine in the eastern states. The raising and packing of pork has, therefore, very naturally grown up in the western states, and vast quantities are exported from there every year, including pigs on foot, by railway, slaughtered and sent off in the whole carcass, and in hams, shoulders, and sides, smoked, and in the shape of barrelled pickled pork.

The native hogs of the west—that is, the descendants of those taken there by the earlier settlers, and common there till within a very recent period—were admirably calculated for the primitive condition of civilization in which they were placed. They were well calculated to shirk for themselves, as they had to do, and became as fleet as the deer, while their strength of head, neck, and tusks enabled them to fight any wild beast of the forest, and withstand any extent of exposure to the weather. They were diametrically opposite in every prominent good quality to the improved swine of the present day. Instead of speed and fleetness of foot, the farmer wants sluggishness in his hogs; instead of coarse, rawny bones, he wants fine, small-boned animals; and instead of a thick, hard coat, he wants a fine head, thin coat, ready fattening qualities, and general thriftiness. And so the Suffolks became the favorites, and produced many most excellent crosses with the old natives. In other parts of Ohio, where improvement has taken place, the Byfield, the Chester County, the Berkshire, the China, the Irish Grazier, or some other of the many excellent improved breeds have been introduced, and effected a great and perceptible change. The western farmer wants greater size than he finds in the pure Suffolk or the pure bred Essex, but he also wants most of the excellent

qualities which a cross of these breeds on the large and coarser natives produces.

It is a somewhat singular fact, that according to the last census, the number of swine kept in the United States exceeds that of sheep by nearly *ten millions;* that of the former being over thirty millions, or 30,354,213, while that of the latter was 21,723,220. In point of numbers, Tennessee takes the lead of all the states, having no less than 3,104,800, while her number of sheep was only 811,591. Kentucky, at the same time, had 2,891,163 swine, and 1,102,091 sheep. Indiana is ahead of Ohio in the number of swine, the former having 2,263,776, to 1,964,770 in the latter. The geographical distribution of the aggregate number of swine in the country was as follows: The south, embracing the states mentioned on a previous page, had 20,808,948; the west had 6,874,996, and the north had 2,670,469.

But no one, with a simple knowledge of the aggregate number of swine, would form an adequate idea of the enormous extent to which the business of raising and packing pork for exportation has grown up within the last few years, and it is important to look at the statistics of this business, especially as it is carried on at the west. And as Cincinnati is the largest pork market in the United States, and indeed in the world, not even excepting Cork and Belfast, it will be interesting to state in brief the manner in which the business is conducted there, from which the mode of management in the other large cities of the west may be obtained. The following facts are gathered chiefly from statistics published by Mr. Cist, of Cincinnati.

The slaughter houses are in the outskirts of the city, fifty by one hundred and thirty feet each in extent, the frames boarded up with movable lattice-work at the sides, ordinarily kept open to admit the air, but shut during intense cold, so that the hogs may not be frozen so stiff as not to be cut up to advantage. Each establishment employs as many as one hundred hands, selected for their strength and activity.

The hogs being confined in adjoining pens, are driven, about twenty at a time, up an inclined bridge, opening into a square room at the top just large enough to hold them. As soon as the door is closed, a man enters from an inside door, and with a hammer weighing about two pounds, fixed to a long handle, knocks each hog down by a single blow between the eyes. In the meantime, a second adjoining apartment is being filled with as many more. A couple of men seize the stunned hogs, and drag them through the inside door to the bleeding platform. Here each gets a cut in the throat with a sharp-pointed knife, and the blood falls through the lattice floor. After bleeding a minute or two, they are slid off this platform into the scalding-vat, about twenty feet long, six feet wide, and three feet deep, kept full of water heated by steam, the temperature being easily regulated. As the hogs are slid into one end of this vat, they are pushed along slowly by men standing on each side with short poles, turning them over so as to get a uniform scalding, and moving them onward so that each will reach the other end of the vat in about two minutes from the time it entered. Ten hogs are usually passing through this scalding process at the same time, being constantly received in at one end, and taken out at the other, where there is a contrivance for lifting them out of the water two at a time, by one man operating a lever which raises them to the scraping table, five feet wide and twenty-five feet long, with eight or nine men on each side, and usually as many hogs on it at the same time, each pair of men performing a separate part of the work of removing the bristles and hair; the first two take off only those bristles which are worth saving for the brush makers, taking only a double handful from the back of each hog, which are deposited in a box or barrel close at hand. The hog slides on to the next two, who with scrapers remove the hair from one side, then turn it over to the next two, who scrape the other side; the next scrape the head and legs; the next shave one side with sharp knives; the next shave the other; the next do the same to the head and legs. Each pair of men have to do their part of the work in twelve seconds, or at the rate of *five hogs a minute*, for three or four hours at a time! When the hog arrives at the end of this table, all shaved smooth, another pair of men put in a gambril stick and swing the hog off on the wheel, which is about ten feet in diameter, revolving on a perpendicular shaft extending from the floor to the ceiling, the height of the wheel being about six feet from the floor. Around its outer edge are placed eight large hooks, about four feet apart, on which the hogs are hung to be dressed.

As soon as the hog is swung from the table to one of these hooks, the wheel turns one-eighth of its circuit, and brings the next hook to the table, and carries the hog a distance of four feet, where a couple of men dash it with clean cold water and scrape it down with knives to remove any loose hair or dirt that it may have brought along off the table. Then it moves again and carries the hog four feet further, where another man cuts it open in a single second and removes the larger intestines, or such as have no fat on them worth saving, and throws them out at an open doorway at his side; another move of four feet carries it to another man, who lifts out the rest of the intestines, the heart, liver, etc., and throws them upon a large table behind him, where four or five men are engaged in separating the fat and other valuable parts; another move and a man dashes a bucket of clean water inside and washes off all the filth and blood. This completes the cleaning, and each man has to do his part of the work in just twelve seconds, as there are only five hogs hanging on the wheel at the same time, and this number are removed and as many more added every minute. The number of men inside, not including the drivers outside, is fifty, so that each man in effect kills and dresses a hog every ten minutes of working time, or forty in a day. At the last move of the wheel a strong fellow shoulders the hog, and another removes the gambril stick, and backs it off to the other part of the house, where it is hung up for twenty-four hours, to cool, on hooks, in rows on each side of the beams just over a man's head, where there is space and hooks for 2,000 hogs, or a full day's work at killing. The next day they are taken off by teams to the packing houses.

The hauling of the hogs from the slaughter to the packing houses is of itself a great business, keeping more than fifty of the largest class of wagons employed, each loading from sixty to one hundred and ten hogs at a load. They are unloaded and piled up near the scales in rows as high as possible. Another set of hands is engaged in carrying them to the scales, where they are weighed singly. From the scales they are taken to the blocks, where the head and feet are first struck off with such precision that no blow requires to be repeated. The hog is then divided into three parts, separating the ham and shoulder ends from the middle, when these are again divided into single hams, shoulders, and sides. The leaf lard is then torn out, and every piece distributed with the exactness and regularity of machinery to its appropriate pile. The tenderloins—about two pounds to a hog—are sold to the sausage makers. The shoulders and hams thus cut, undergo further trimming to get them into shape, and are sorted for their appropriate markets. When lard is high, the packer trims so close as sometimes to make the entire shoulder into lard. If the pork is intended to be shipped off in bulk, or to be smoked, it is piled in great masses and covered with fine salt, at the rate of fifty pounds of salt to two hundred pounds of meat. If otherwise, the pork is packed in barrels with coarse and fine salt.

The different classes of cured pork are made up of different sizes and conditions of hogs; the finest and fattest make clear and mess pork, and the rest, prime pork or bacon. According to the inspection laws, clear pork is to be put up of the sides, with the ribs out, and none but the largest class of hogs can receive this brand. Mess pork is made up of all sides, with two rumps to the barrel. Pork of lighter weights may pass as prime. The shoulders, two joles, and sides—enough to fill up the barrel—constitute prime pork.

The mess pork is used for the commercial marine and the United States navy. The prime is usually packed, also, for ship use and the southern markets; while the clear pork goes out to the cod and mackerel fisheries. Bulk pork is intended either for immediate use or smoking. That for immediate use is sent off in flat boats to the lower Mississippi; but the great mass is sent to the smoking houses, each of which can cure from 175,000 to 500,000 pounds at a time. The bacon is sold to the iron manufacturing regions of Pennsylvania, Kentucky, and Ohio, the fisheries of Pennsylvania, Maryland, and Virginia, and to the coast, or Mississippi region above New Orleans. Of 500,000 hogs cut up, the produce will be about 180,000 barrels of pork, 25,000,000 pounds of bacon, and 16,500,000 pounds of lard. The lard is shipped for the Havana market, where it is extensively used for cooking, and takes the place of butter to a great extent. Large quantities of it are also shipped to England and France.

One establishment is devoted to the putting up of hams and the trying out of grease from the rest of the hog, and its operations

reach from thirty-five to forty thousand hogs in one season. The entire carcasses, except the hams, are put into large tanks, and subjected to steaming at the rate of seventy pounds to the square inch, which reduces the whole to the same consistency, and every bone to powder. The fat is drawn off by cocks, and the rest taken off for manure. The great masses of heads, ribs, back-bones, feet, and other trimmings cut up at different pork houses, are subjected to the same process, to extract every particle of grease. This concern turned out, in one season, 3,600,000 pounds of lard, five-sixths of which was No. 1. It is refined as well as steamed by the process, and comes out of extreme purity and beauty. Six hundred hogs a day pass through these tanks. Besides, there are a large number of lard oil factories in Cincinnati—thirty or forty, at least—which do an immense business. One of them has manufactured into lard oil and stearine, 140,000 pounds a month all the year round. 11,000,000 pounds of lard were run into lard oil in one year, making 24,000 barrels of lard oil, of forty or forty-two gallons each, which was sent to the Atlantic cities to be used as such, or in the adulteration of sperm oil; much of it, also, being sent to France to be used in the adulteration of olive oil, the cost of which it very much reduces. The skill of French chemists enables them to incorporate from 65 to 70 per cent. of this miserable lard oil with that of the olive.

Then the star candle factories take the stearine, subject it to hydraulic pressure, and are prepared to manufacture 30,000 pounds of star candles a day. More than 3,000,000 of pounds of this stearine have been made in one year into star candles and soap in these factories.

Then the soap manufactories take up the offal, try out the grease, and make 100,000 pounds of ordinary soap a week, to say nothing of an immense quantity of finer soap, soft soap, etc. The glue factory uses up the hoofs of the hogs. Then come the bristle dressing establishments, employing a hundred hands preparing bristles for the eastern markets. Then come the prussiate of potash establishments, using up the hair part of the hoofs and other offal, making vast quantities of prussiate of potash for the use of the print factories of New England, where it is wanted for coloring purposes, while the blood of the hog is manufactured into Prussian blue. Thus every part of the hog is economized, no part being lost.

The following table shows the number of hogs packed in Cincinnati each year for twenty-seven years:—

1833	85,000	1847	250,000
1834	123,000	1848	475,000
1835	162,000	1849	410,000
1836	123,000	1850	393,000
1837	103,000	1851	334,000
1838	182,000	1852	352,000
1839	190,000	1853	361,000
1840	95,000	1854	421,000
1841	160,000	1855	356,786
1842	220,000	1856	405,396
1843	250,000	1857	344,512
1844	240,000	1858	446,677
1845	196,000	1859	382,826
1846	205,000	1860	

But in addition to this, there are very many other points where the business is carried on extensively, but in a similar manner to that described above.

The magnitude of this business will appear more striking and important when it is considered what a vast amount of labor it requires and creates, furnishing employment to thousands, at a season when their regular work, in many cases, would naturally cease. Think of the coopers, not only in and around the large cities, but all over a great section of country, making lard kegs, pork barrels, and bacon hogsheads in winter, many of them working their farms in summer. Then the vast number who must be busy in getting out staves, and hoop-poles, and headings, which is also winter work. All these various occupations, including the more immediate operations of slaughtering and packing in the city of Cincinnati alone, give work probably to at least ten thousand men, who, if it were not for the pork business, would be earning comparatively little during fully one-third of the year. And this in and around one city, and the adjacent country towns. But, as already intimated, other states are largely engaged in the same pursuits, as the following table, showing the number of hogs killed and packed during the last two years previous to the present, will indicate:—

No. of hogs killed in	1857-8.	1858-9.
Ohio	610,060	624,109
Kentucky	372,609	377,117
Indiana	441,885	407,636
Illinois	463,577	596,136
Missouri	176,386	155,774
Tennessee	42,375	65,172
Iowa	85,583	158,217
Wisconsin	16,000	32,702
	2,208,975	2,416,863

An increase of over 10½ per cent., or in all, of 227,888 hogs *packed*.

In the above statistics of stock of various kinds, no account has been taken of the enormous increase of domestic animals of all kinds in California during the last ten years, which will be found to be vastly greater than most people have any idea of. The number of milch cows in that state, at the present time, is but little short of three hundred thousand, or about one to every two inhabitants, while the increase of horses, oxen, sheep, and swine has been equally astonishing. When it is considered that the state is scarcely yet eleven years old, and that its agricultural resources are almost wholly undeveloped as compared with its capacities for improvement and production, some idea may be formed of the aggregate agricultural wealth which it is destined to add to the country.

We have thus alluded briefly to the various classes of live stock in the United States, and shown its progressively increasing value, and we find the sum total of all classes to be nearly five hundred and fifty millions of dollars ($544,180,516), while the value of slaughtered animals was about one hundred and twelve millions, or more accurately $111,703,142. If to this we should add the value of farm implements and machinery, and that of the farms themselves, we find the whole investment to amount to about four billions of dollars, or $3,962,353,395, in the year 1850, while local or state statistics, and the previous ratio of increase, would indicate a large increase upon that sum for the present time; and the question naturally arises, what is the annual income from this vast capital invested in farming, and the labor which is a necessary incident to it?

Let us refer to the leading products for a satisfactory reply:—

PRODUCTS OF THE SOIL.

In a range of latitude extending almost from the tropics to the regions of frost and snow, we should naturally expect to find a great variety of climate, and the products more especially adapted to it. And such is the case. The products of our agriculture are infinitely varied, and all the great staples form a most important part in promoting the national prosperity. But if, among them all, one can be said to hold pre-eminence over the rest, the palm must be yielded to the golden corn, rearing its imperial form and tasselled banner high over all its compeers, and founding its claim to royalty, as the prince of cereals, by the universality of its uses and its intrinsic importance to mankind.

Its flexibility of organization is truly wonderful; for while it grows best on moist, rich soils, and with great heats, there are varieties of it which can be raised at the height of more than eight thousand feet above the level of the sea. The warmest regions of the torrid zone produce it in abundance, while the short summers of Canada have varieties adapted to them which arrive at maturity with almost the same certainty as those under a hotter sun and a longer season.

INDIAN CORN, therefore, as being the great staple crop of the country, demands our first attention.

This plant is of American origin. It was found in cultivation among the aborigines of the country at the time of its discovery by Columbus. It is referred to by the oldest historians of Peru. It has been found growing wild in various parts of Central America, and Humboldt, who must be regarded as the most eminent authority, says: "It is no longer doubted among botanists that *Maize*, or Turkish corn, is a true American grain, and that the old continent received it from the new."

It is well known that Indian corn entered, in some form or other, into the mythology and the religious ceremonies of the Indians, both of North and South America, long before they were disturbed by the appearance and approach of civilization. Schoolcraft mentions an interesting allegory of the Ojibwas, which has since been clothed with an unusual fascination by the graceful language of Longfellow.

A young man went out into the woods to fast, at the period of life when youth is exchanged for manhood. He built a lodge of boughs in a secluded place, and painted his face of a sombre hue. By day he amused himself in walking about, looking at the various shrubs and wild plants, and at night he lay down in his bower, from which, being open, he could look up into the sky. He sought a gift from the Master of Life, and he hoped it would be something to benefit his race. On the third day he became too weak to leave the lodge, and as he lay gazing upward he saw a spirit come down in the shape of a beautiful young man, dressed in green, and having green plumes on his head, who told

him to arise and wrestle with him, as this was the only way in which he could obtain his wishes. He did so, and found his strength renewed by the effort. This visit and the trial of wrestling were repeated for four days, the youth feeling at each trial that, although his bodily strength declined, a moral and supernatural energy was imparted, which promised him the final victory. On the third day his celestial visitor spoke to him. "To-morrow," said he, "will be the seventh day of your fast, and the last time I shall wrestle with you. You will triumph over me and gain your wishes. As soon as you have thrown me down, strip off my clothes and bury me on the spot, in soft, fresh earth. When you have done this, leave me, but come occasionally to visit the place, to keep the weeds from growing. Once or twice cover me with fresh earth." He then departed, but returned the next day, and, as he had predicted, was thrown down. The young man punctually obeyed his instructions in every particular, and soon had the pleasure of seeing the green plumes of his sky visitor shooting up through the ground. He carefully weeded the earth, and kept it fresh and soft, and in due time was gratified at beholding the mature plant, bending with its golden fruit, and gracefully waving its green leaves and yellow tassels in the wind. He then invited his parents to the spot to behold the new plant. "It is Mondamin," replied his father, "it is the spirits' grain." Tradition says they immediately prepared a feast, and invited their friends to partake of it; and that this is the origin of Indian corn.

However this may be, we know that the first attempt by the English to cultivate it within the present limits of the United States, was made on James river, in Virginia, 1608 or 1609. They adopted the mode of culture in practice by the Indians, as given on a preceding page. A year or two after, it is said they cultivated in all as many as thirty acres. The pilgrims found it in cultivation by the Indians around Plymouth, and immediately began its cultivation, manuring it with alewives. As early as 1621, Gov. Winslow visited the Nemasket Indians, at Middleboro', Mass., who fed him on *mazium*.

The cultivation of this important grain was, then, fairly begun at the very first settlement of the country, and it has been continued with slight modification, but constantly extending and increasing in its aggregate product, down to the present time. It is a remarkable fact shown by a comparison of the censuses of 1840 and 1850, that the product largely increased during the ten years, in nearly every state of the Union, and in no state did it retrograde. In New England it increased 50 per cent. in that time, and its increase since has been quite as great, if not even greater, than previous to 1850.

Among the earlier exports of the country we find frequent mention of the number of bushels of Indian corn, showing that a considerable surplus was produced in many localities a century ago. Thus, the amount exported from South Carolina in 1748 was 39,308 bushels, and in 1754, 16,428 bushels. The amount shipped from Savannah in 1655 was 600 bushels, and in 1770, 13,598 bushels. And so North Carolina exported no less than 61,580 bushels as early as 1753. Virginia for several years previous to the Revolution exported 600,000 bushels a year, and from the port of Norfolk alone, 341,984 bushels in the year 1791; while in 1795 the amount from that port reached 442,075 bushels. At the same time the amount sent from City Point, Virginia, in 1791 was 21,180 bushels, including meal, and in 1795, 33,358 bushels.

The amount shipped from Philadelphia in 1752 was 90,740 bushels, and in 1767 there were exported from there 60,206 bushels. In 1771 it reached 259,441 bushels, and in 1796 it amounted to 179,094 bushels, in addition to 223,064 barrels of Indian meal.

There were 2,510 bushels shipped from Portsmouth, N. H., in 1776; and in 1777, 1,915 bushels; which amount increased in 1778 to 5,306 bushels; while in 1779, the export amounted to 3,097. The export of this grain from the same place was 6,711 bushels in 1780, and 5,587 bushels in 1781.

But previous to the first-mentioned date (1776), this grain was on several occasions, imported into Portsmouth, and up the Piscataqua river, to the extent, in 1765, of 6,498 bushels, owing, probably, to a severe drought in the year previous, and the spring of 1765, which seriously affected the corn crop. And again, in 1769 the import to that section amounted to 4,097 bushels, followed in 1770 by 16,587 bushels. During that year there was a "very melancholy dry time," in July and August; a drought of such severity that there was little prospect of corn.

The worms had done much injury in the spring, and a "very uncommon sort of worm, called the canker worm, ate the corn and grass all as they went, above ground, which cut short the crops in many places." And again, in 1772 the pastures all dried up, and there was very little corn, and all kinds of grain suffered very much; so that the amount of corn imported into Portsmouth and vicinity was 4,096 bushels in that year.

But the total amount of Indian corn exported from the colonies in 1770 was 578,349 bushels. In 1791 it amounted to 2,064,936 bushels, including 351,695 bushels of Indian meal. In 1800 the aggregate number of bushels exported was 2,032,435, including 338,108 bushels of meal; while in 1810 the export of this grain was only 140,996 bushels, of which 86,744 bushels were in the form of Indian meal.

The product of Indian corn, as may be gathered from the amount exported, had never reached any thing like the figures which it has attained within the last thirty years. This was not owing merely to the fact that the avenues to the great west were not then opened—though, of course, they have vastly multiplied the market facilities for this and other products—but chiefly to the fact that the real advantages of cultivating this as a staple or reliable crop, were not then appreciated as they are now. Add to this the fact that it was comparatively little used as human food in any part of Europe, and we have a reason sufficient to account for the fact that the product was comparatively small. The inland farmer had no market for it, the cost of transportation of so bulky a product prevented him from teaming it to any great distance, and the local demand was so limited that there was no object in raising much more than was absolutely needed for home consumption.

In the year 1816 the crop of Indian corn was very generally cut off throughout the northern states by frequent and severe frosts, so that as a cultivated crop it fell into disrepute in many sections, and was cultivated less for some years, by individual farmers, till its intrinsic importance as a sure and reliable crop brought it gradually into favor. At the time it was first included in the United States census, in 1840, the aggregate yield of the country was 377,531,875, or nearly four hundred millions bushels. In 1850 it had reached within a fraction of six hundred millions, being returned as 592,071,104, occupying 31,000,000 of acres. The value of this enormous crop was $296,034,552. This was a gain of 57 per cent., or 214,539,229 bushels, while the increase of population during the same period was only 35 per cent. According to the estimate of the secretary of the treasury, the crop of Indian corn in 1855 was between seven and eight hundred millions, or nearly double that of 1840. But this estimate was entirely too low, the crop being the largest and best that year that had ever been raised in the country, and amounting, at least, to 1,000,000,000 bushels, and its value, at a low estimate, was $400,000,000.

We see, therefore, on reference to the census, that this crop formed about three-sixteenths of the whole agricultural product of the country in 1850, and that the proportion of improved land devoted to corn was .333, while the number of bushels to each person in the country was 25.53.*

From the amounts of corn stated above, as raised in 1840 and in 1850, it will be seen that we had a very large surplus over and above what we needed for home consumption; though it must be evident that vast quantities are, and must be required to feed to the large number of cattle and swine, which we have seen are annually prepared for the shambles. It appears from official statistics that the exportation of Indian corn has rapidly increased since 1820, when it amounted to only 607,277 bushels, valued at $261,099, and 131,669 barrels of Indian meal, valued at $345,180, making an aggregate of $616,279. In 1830-1 the number of bushels of corn exported from the country was 571,312, valued at $396,617, and 207,604 barrels of Indian meal, valued at $595,434. In 1840-1 the number of bushels of corn exported was 535,727, valued at $312,954, with 232,284 barrels of meal, worth $682,457.

But in 1845-6 the amount rose to 1,826,068 bushels, valued at $1,186,663; and from that in 1846-7 to 16,326,050 bushels of corn, worth $14,395,212. The next year, 1847-8, it reached nearly six millions of bushels; and in 1848-9 to upward of thirteen millions, valued at $7,966,369.

* France produced in 1826 but 17,280,000 bushels, while in 1847 she produced 33,400,000 bushels—being an increase of nearly 100 per cent. in twenty years. Russia produced 16,000,000 of bushels in 1850.

The amount of Indian corn and Indian meal exported from the country from 1851 to 1858 may be seen as follows:—

	Bush. of corn.	Value.	Bbls. of Indian meal.	Value.
1851,	3,426,811	$1,762,549	293,622	$622,866
1852,	2,627,075	1,540,225	181,105	574,380
1853,	2,274,909	1,374,077	212,118	709,974
1854,	7,768,816	6,074,277	257,403	1,002,976
1855,	7,807,585	6,961,571	267,208	1,237,122
1856,	10,292,280	7,622,565	293,607	1,175,688
1857,	5,595,318	5,184,666	267,504	957,791
1858,	4,766,145	3,259,039	237,637	877,692

The amount of exports is, of course, regulated very much by foreign demand. If breadstuffs are scarce in Europe and prices high, they are immediately shipped from this country to take advantage of the market. If the reverse is the case, and prices are low, our surplus is kept at home. It is but a few years since the foreign demand for breadstuffs began to any extent. Now and then would occur a year of unusual scarcity, to be sure, but it was rare to find any extensive demand year after year for our surplus products. The increase of population beyond the point of capacity to produce, in Great Britain and the continent of Europe, now gives the bread question an importance paramount to all others with the European statesman, and it is having and will have a powerful influence on our agriculture. Consumption has overtaken production—got beyond it, in fact, in some of the countries of Europe—and henceforth importation must supply an ever increasing demand, since, however much the agricultural production of western Europe may increase by the improving condition of its agriculture, it cannot hereafter keep up with the natural increase of population, which, at the present time, in Great Britain, is at the rate of a thousand per day. This crowding population will appear in its true light, in an agricultural point of view, when it is considered that if the United States and its territories were as thickly populated as Great Britain, they would contain about 750,000,000 of people, a number nearly equal to the whole population of the globe.

The year 1824, it is asserted by some, was the turning point at which consumption overtook and exceeded production in England. Since that time the agricultural production of Great Britain has been vastly increased by the improvement of agriculture and live stock; but great and perceptible as improvement has been, it has not, and cannot fully supply its overgrown population. The famine in Ireland in 1847, causing the loss of half a million of lives by starvation, and the political revolution which soon followed on the continent in 1848, growing out, to a great extent, of a short supply of food, are fresh in the minds of every one.

Now this surplus of population and the consequent permanent demand for the productions of our soil are of comparatively recent date, and we have hardly, even yet, begun to realize their importance and the influence which they are hereafter to exert in developing the resources of our soil. It was only a century ago (1756) when D'Anqueville, a political economist of France, said: "England could grow corn enough in one year to supply herself for four." Now, though she has, at least, three times as much land under cultivation as then, and though the yield of her products to the acre has been more than doubled, yet she imports food in the shape of corn, wheat, oats, meal, and flour to the extent of more than £45,000,000, or $225,000,000. Now, though western Europe has been supplied, to a large extent, from Russia and other parts of the world, it is becoming more and more evident that it has got to look more and more to this country for its supplies, and this fact is recognized by many of the leading journals and statesmen of Europe, as, for instance, the *Mark Lane Gazette*, which says: "One fact is clear, that it is to western America that we must, in future, look for the largest amount of cereal produce."

It was fortunate, therefore, for the prosperity of the country, and especially for the prosperity of its agriculture, constituting by far the largest and most important interest, that just about the time when a more extensive demand for its surplus products grew up in Europe, the means were provided for throwing this surplus into good markets.

After the triumphant termination of the war of the Revolution, the importance of developing the material resources of the country impressed itself upon the minds of far-seeing statesmen. Washington himself projected a canal, extending up the Potomac, to connect the great west—then comparatively uninhabited—with the Atlantic coast, and though the enterprise was premature, and the requisite capital could not, at that time, be procured, it shows the grand conception of his noble mind, and that he foresaw the vast importance which the agricul-

ture of that great country was destined to assume. But that state of things could not always remain in a country rapidly recovering from the stagnation of a long protracted struggle for independence, and the events of a second war showed most clearly the necessity of increased facilities of intercommunication. Then we had no canals to speak of, and no good roads. The great extent of sea coast, the magnificent bays, and the mighty rivers which intersected the country were the chief means of industrial intercourse, and these could be blockaded, crushing our commerce and bankrupting individuals, to the serious injury of the whole country. Then DeWitt Clinton conceived the project of connecting the waters of the Hudson with those of Lake Erie, by a canal so vast in extent as to strike everybody with astonishment. President Madison went so far as to express the opinion that it could not be accomplished, even with the treasures of the whole federal government. But Clinton persisted, and in 1825, eight years from the time it was begun, a canal of three hundred miles in extent, costing over $9,000,000, bore the produce of the west to the New York market.

The success of this grand enterprise stimulated other improvements of a similar character, and opened up sources of wealth, the mere enumeration of which would appear to be fabulous. Railroads soon followed, annihilating distance, as it were, and bringing the growing centres of trade into close communication. We now have over 30,000 miles of railroads, forming a complete network all over the country. At the time of the Revolution, the great state of Ohio was a wild forest that had rarely been penetrated by any white man, except, perhaps, the adventurous hunter. In 1800 she had but little over 40,000 inhabitants. Now railroads connect her many large and prosperous cities and her innumerable villages, and take the produce of her fertile farms to the seaboard markets.

These means of communication are of so recent date, that any prediction of their ultimate results in developing the agricultural resources of these states would be premature. Indeed, the capacity for the production of human food, which is still comparatively undeveloped in that section, can hardly be estimated. The progress within the last twenty years has been so rapid and unprecedented, as to appear altogether marvellous.

But Indian corn, though by far the most important product, is not the only great staple production of the country, and we turn our attention to

WHEAT.

The wheat crop of the country is scarcely less important than that of Indian corn, and, in some respects, it is even more important. This, like the other grains, was cultivated in this country at a very early date, having been sown by Gosnold, on the Elizabeth Islands, on the southern coast of Massachusetts, as early as 1602, at the time he first explored that coast. In 1611 it seems to have been first cultivated in Virginia, and so much did it commend itself to the early settlers, that in 1648, if history is to be relied on, there were several hundred acres in that colony. It soon fell into disrepute, however, as a staple crop, for the cultivation of tobacco was found to pay better, and for more than a hundred years it was comparatively little cultivated. Premiums were offered to encourage its culture, but they were not sufficient to check the growing attention to tobacco.

It is certain that wheat had been cultivated by the Dutch colony of the New Netherlands, for it is recorded that samples of this grain were taken to Holland in 1626, to show what could be done in the new country.

It is not certain that it was cultivated in the Plymouth colony immediately upon its settlement, though it is highly probable that not more than a year or two would have been allowed to pass before so important a plant would have received its due attention. In 1629, wheat and other grains for seed were ordered from England, and in 1631, there arrived a vessel with thirty-four hogsheads of wheat flour.

The culture of wheat was undoubtedly commenced almost simultaneously with the settlement of the country, but it seems never to have attracted any very great attention for more than a century, Indian corn and potatoes being more relied upon for subsistence. It was never raised in New England, in early times, with so much success as it has been during the present century. As early as 1663, it was found to be very subject to blast and mildew. Early in July of that year, "the best wheat," says an old manuscript diary that I have consulted, "as also some other grain, was blasted in many

places, so that whole acres were not worth reaping. We have had much drought the last summer (1662), and excess of wet several other springs, but this of blasting is the first so general and remarkable that I yet heard of in New England."

But this blasting is frequently "heard of" afterward, for the very next year (1664) the wheat was very generally blasted, "and in sundry towns scarce any left." And the blast returned again in 1665 and 1666 with great severity. This explains why it never became a prominent crop in New England. There never was a time in the history of this section of the country when it was a sure and reliable crop, unless it be the present, with our improved modes of culture, our better knowledge of proper modes of tillage, deep ploughing, and thorough drainage. I have no patience to read the cant which is constantly paraded in the papers of this and other countries about the exhausted soils of New England. How often do we see it stated that they are "run out," that they won't bear wheat, and the return of the census of 1850 is compared with that of 1840 to show an enormous falling off, as if it were owing to the fact that it is impossible to grow wheat. It is not so. As good crops can be and are grown in Massachusetts now as there ever were. It is as safe a crop now as it ever was, and as profitable. But "the census shows a falling off," is constantly sounded over the country, till people are led to believe it cannot be raised on account of the impoverished condition of the soil. The census does show a decline of this crop in New England between 1840 and 1850, and a large one. But the wheat crop was injured in 1849—that being the year on which the statistics of the crops of 1850 are returned—to a degree wholly unprecedented, not only in New England, but in several of the largest wheat-growing states. The returns, therefore, made in June, 1850, do not correctly indicate the usual quantity of grain grown in the United States. Nor will the census of 1860 give any thing like an adequate idea of the magnificent crop of wheat produced in that year (1860) throughout the northern, middle, and western states.

But wheat is subject to many losses by insects, rust, smut, frost, drought, storms, and other casualties, as well as poverty of the soil. In some recent years it has been very greatly damaged in central and western New York, and in Ohio, by the wheat fly; in other years, the weevil. When the former, the wheat fly, makes its appearance, there is no known remedy but to discontinue the culture of wheat in that locality till it disappears. After a time, the culture of wheat may be restimed with a reasonable hope of freedom from this pest. This is one reason of the little attention, comparatively, paid to the culture of this crop in New England for the last few years. The farmers in many localities are resuming its culture again. I know many and many a magnificent field of wheat in Massachusetts this year (1860), that will average twenty-five, thirty, and thirty-five bushels to the acre, of as full and fair a kernel as ever grew; and many an acre in Massachusetts has averaged over forty bushels this year. It is the opinion of many practical farmers that they can raise thirty-five bushels of wheat as easy as fifty bushels of corn to the acre. But the census of 1860 will not return the full crop.

There were other reasons for the falling off than the impoverishment of the soil. A part of these have been alluded to, and are to be found in the comparative uncertainty of the crop; but a more direct and important cause was the opening of direct railroad communication, and the cheap freight system, with the west. The farmer could produce other crops for the market which paid well, and it was better for him to buy flour than to raise it. He could not compete with the west in raising wheat, but he could in raising milk for the market, in raising fruit—which finds a ready sale at his door—in raising vegetables, which the multiplication of manufacturing villages in his neighborhood created a demand for. And so his industry was merely turned into another channel for a time, and very wisely too.

During the last century considerable quantities of wheat were raised along the Hudson and the Mohawk, and in New Jersey and Pennsylvania; and, as we have seen in the case of Indian corn, the exports were somewhat respectable in years of scarcity in Great Britain, France, Spain, Portugal, and the West Indies, even previous to 1723. In 1750 New Jersey took the lead of all the colonies in growing wheat.

The amount of flour exported from New York in 1749-50, was 6,721 tons, besides many bushels of grain; in 1756 it was 80,000 barrels. The amount exported from New Jersey in 1751 was 6,424 barrels. The amount shipped from Philadelphia in 1752

was 125,960 barrels, and 86,500 bushels of wheat. In 1771 the export of flour from that place was 252,744 barrels, and in 1772, 284,827 barrels; in 1784, 201,305 barrels; in 1787, 193,720 barrels; in 1791, 315,785 barrels. Virginia, for some years prior to the Revolution, exported about 800,000 bushels of wheat. The aggregate amount of flour exported from the United States in 1791 was 619,681 barrels, and 1,018,339 bushels of wheat. In 1800 the export amounted to 653,052 barrels, and 26,853 bushels of wheat. In 1810 the export was 798,431 barrels of flour, and 325,024 bushels of wheat.

Considering the unfavorable season of 1849, we are not surprised to find that the increase of the wheat crop during the ten years from 1840 to 1850 was but 15 per cent. It is possible that with a good wheat year in 1849, the rate of increase would have appeared to keep pace with that of Indian corn. In the eastern states, as we have seen, it declined; in the middle states it was nearly stationary, the increase being little over 15 per cent. The aggregate number of bushels in 1840 was 84,823,272; in 1850 it was 100,485,844.

It is quite probable that changes have taken place in the soils and productiveness of some sections of the older states, owing to careless and ignorant management. In a new and very sparsely populated country, where each man had to rely mainly upon himself for every thing he had, it could hardly have been otherwise. I am satisfied, however, that a reaction has fairly begun, that more attention is paid to the management of farms, that more intelligence and skill are brought to bear upon agriculture, which statistics will eventually show.

But by far the most extensive and astonishing changes, in an agricultural point of view, are those presented to us in the rise and development of the west, whose almost illimitable fields are the wonder and admiration of modern times. The "west" is, indeed, in the understanding of most people, an imaginary and movable line. Fifty or sixty years ago it was understood, in the eastern states, to be somewhere in central or western New York, and the difficulty of reaching it exceeded in magnitude that of visiting the most remote corner of Kansas, now. This line has been moving west with the advance of civilization ever since. It now comprises several of the largest and most prosperous states of the Union, and is destined to rank as the granary of the world.

The first foothold that modern agriculture got in this vast field was secured in the same year of the founding of Philadelphia, 1682, when white settlements were made in the southern part of what is known as the "American bottom," a tract of country extending for about a hundred miles in length—from Alton, twenty miles above St. Louis, down to Chester, at the mouth of the Kaskaskia river—by five miles in width. This region lies in Illinois, and forms the eastern border of the Mississippi river. Here, far removed from eastern civilization, a bold and hardy, but honest and peaceable company of French, from Canada, and from France itself, established the old villages of Kaskaskia, Prairie du Rocher, St. Philip, Cahokia, etc., chiefly for the purpose of opening a fur trade with the Indians. A part, probably at least half, of the settlers, however, finding the soil exceedingly rich, devoted themselves to the cultivation of land, and the country for a considerable extent around these villages soon became productive of wheat and other necessaries of life.

This was the first settlement beyond the Alleghany mountains, and preceded by a whole century the first settlements of Kentucky and Tennessee. For a hundred and fifty years those farmers lived in peace and harmony with the natives. They were not, to be sure, very skilful in the art of agriculture. It was but rudely pursued at that time in the mother country. The implements used in farming, even in the best cultivated regions of Europe, were then extremely rude as compared with those of the present day; but here, in this remote outskirt of civilization, they were far more rude and uncouth than those used by farmers who had greater facilities for making them.

But notwithstanding this rude and imperfect culture, so great was the fertility of the virgin soil to which it was entrusted, the wheat grew luxuriantly, and they often had a surplus, useless and comparatively worthless to them, since the expense of getting it to market exceeded its value when it had arrived there. Who would be expected to make improvements in farming under such circumstances? With the demand for home consumption supplied with but trifling labor, with no inducements beyond a supply of their own limited wants, they could not be

expected to exhibit the enterprise and thrift of farmers having greater interests at stake. But they went further, and entertained the same prejudice against any new notion, and repugnance to any change, as that cherished at the same time in the older colonies. The old-established practice was good enough for them, and they clung to it with a tenacity worthy of a better cause.

The cultivation of Indian corn was not introduced among these early western farmers till long after they established themselves in that region—not, indeed, till after Louisiana had become a part of our national territory; but then, it took the place of wheat to a considerable extent, it being thought a more reliable crop, while the stalks furnished a more valuable winter fodder for cattle. When once introduced, it was cultivated on the same land year after year, for many years in succession, a practice which was continued in that section till a very recent date. Instead of linens and woollens, which were mostly worn at the same period among the country people at the sea-board, these farmers usually raised a small patch of cotton, and made their own garments, often using, also, the skins and furs of wild beasts. These latter became so important, as to be used as the currency in business negotiations, a deer-skin being of the highest kind, and serving as the unit.

Thus lived these quiet colonists, without change, and with slight improvements, from one generation to another, poor but independent, with food enough, cattle and hogs enough, few wants to supply, clinging with inveterate tenacity to old customs, and resisting innovations, till the time of the cession of the country east of the Mississippi by France to England, in 1763, at which time the colony was at the height of its prosperity. The horses they raised were the small Canadians, said by some to have been derived from the pure Arabian, and obtained originally through Spain. They were very hardy, more so than the American horses of that time, and were rarely crossed with any other race; but little or no care was taken of them for more than a hundred years, and they were allowed to run on the range without grain. Their cattle were small, with black horns, derived also from Canada. The French kept large numbers of fowls, usually had excellent gardens, and cultivated some fruit, among which were some valuable varieties of pears and apples.

That section of country being conquered and taken from England in the Revolution, not a few of the American soldiers, finding the country so fertile, remained and settled there; and it is said, that at least three-fourths of the Americans who had settled in Illinois previous to the war of 1812, had served as soldiers in the Revolution.

After the Revolution, in fact, numerous settlements were made, till, in 1817, the state was admitted into the Union. After that period, farms and farmers increased more rapidly than they had hitherto done, and the production of wheat and Indian corn rapidly increased. The cradle soon took the place of the sickle. In 1830 the first successful steam flour mill was erected, and gave a new impulse to the raising of wheat. Up to this time, comparatively few cultivated meadows were to be found, and the wild, coarse grasses of the prairies and river bottoms were chiefly relied upon for winter fodder for horses and cattle. Of course, when cattle are running at large, but little improvement can take place in the breed, and but little had actually been attempted in this direction. But now the spirit of improvement began with renewed vigor, and we shall see how rapidly the agricultural resources of that great state have been developed within the last quarter of a century.

What applies to this particular state, will apply with nearly equal truth to almost the whole of the great north-west. The progress of agriculture in Illinois and the adjoining states cannot be better illustrated than by referring to the rise and growth of the city of Chicago, which has now become the greatest primary grain depot in the world, its exports being nearly twice as great as those of St. Petersburg, and exceeding those of Galatz and Ibrail combined, by upward of five millions of bushels a year.

In 1829, Chicago may be said to have had no existence. It was then laid out, and the sale of lots took place in the autumn of that year. In 1840 it contained but 447 inhabitants. In 1845 its population had grown to 12,088, and in 1850 that number had doubled, and the population amounted to 28,269. In 1855 it had increased to 88,509, and in 1857 to 130,000.

The pre-eminence of Chicago as a grain depot is due in part to its geographical position, but to a great extent, also, to the great facilities for receiving, warehousing, and shipping

grain. Her immense warehouses are erected on the river and its branches, and railroad tracks run in the rear of them, so that a train of loaded cars may be standing at one end of a large elevating warehouse, and while its load is being raised by elevators at the rate of from 7,000 to 8,000 bushels per hour, at the other end the same grain may be running into vessels, and be on its way to Buffalo, Montreal, or Liverpool within six hours' time. The Illinois Central railroad grain warehouse can discharge twelve cars loaded with grain, and at the same time load two vessels with it, at the rate of 24,000 bushels per hour. It can receive grain from twenty-four cars at once, at the rate of 8,000 bushels per hour. And numerous other immense grain houses can do the same thing. Grain can, therefore, be handled with wonderful dispatch as well as with cheapness. The warehouse alluded to, that of the Illinois Central railroad, is capable of storing 700,000 bushels of grain. It can receive and ship 65,000 bushels in a single day, or it can ship alone 225,000 a day! But this is only one of the magnificent grain warehouses, and there are many others, some of which are of nearly equal capacity, and in the aggregate they are capable of storing 3,395,000 bushels. They can receive and ship 430,000 bushels in ten hours, or they can ship alone 1,340,000 bushels in ten hours, and follow it up the year round. In busy seasons these figures are often doubled by running nights.

The amount of capital in grain warehouses alone exceeds three millions of dollars, to say nothing of a large amount of capital invested in other incidental means of conducting this immense business.

The amount of wheat shipped from Chicago in 1853 was 1,680,999 bushels; of Indian corn, 2,780,253 bushels; and the amount of oats, 1,748,493 bushels. The amount of wheat shipped from there in 1857 was 10,783,292 bushels; of Indian corn, the same year, 6,814,615 bushels; and of oats, 416,778 bushels. The shipment of flour has kept constantly increasing. In 1853 it was 131,130 barrels; in 1854 it was 224,575 barrels; in 1855 it was 320,312 barrels; in 1856, 410,989 barrels; and in 1857, 489,934 barrels.

The shipment of all kinds of grain, and flour as grain, in 1854 amounted to 12,902,320 bushels; in 1855, to 16,633,813 bushels; in 1856, to 21,583,291 bushels; and in 1857, to 18,032,678 bushels. In 1860 the shipments are estimated to amount to at least from thirty to forty millions of bushels. In the first eight months of this year (1860) they amounted to over twenty-one millions!

It is to be considered that the agriculture of the region which feeds the warehouses of Chicago is but yet in its infancy. The resources and the capacity for production are still to a very great extent undeveloped. The country is still sparsely settled, compared with the older states, and the operations of agriculture are carried on under great disadvantages, with a great scarcity of labor, and in many cases a want of capital.

The reader will now be able to appreciate, to some extent, the vast importance of the improvements in agricultural implements and machinery, which have already been described on a preceding page as having been made within the last twenty years. With the implements and processes in use within the memory of most men, it would be impossible to attain such magnificent results in the way of agricultural produce. There are at the present time, in the city of Chicago, some five or six large manufactories engaged in making and selling agricultural implements and machinery, each employing from one hundred to three hundred hands, besides other large establishments at Rockford, Freeport, Alton, and many other places, employing throughout the state more than ten thousand persons. There are at least a dozen reaper and mower manufactories, and other establishments devoted to making threshers, cultivators, ploughs, drills, etc., and the demand for these improved machines is rapidly increasing.

But Chicago is only one of the great centres for the receipt of agricultural produce directly from the farmer, and St. Louis, Cincinnati, Cleveland, Buffalo, Rochester, and many other large points might be mentioned, of nearly equal importance, to say nothing of many of the large grain-dealing cities of the south, like Richmond, for instance.

In view of these facts we can realize that agriculture produces, as was estimated in 1854 by the superintendent of the census, more than sixteen hundred millions of dollars a year; and that in the state of New York, where "the assessed value of the real estate is eleven hundred millions (1,107,272,715) of dollars, notwithstanding the enor-

mous wealth of the metropolis, the agricultural interest pays *four-fifths* of the taxes."

Of the aggregate number of bushels of wheat returned by the census of 1850, and which, as has been intimated, gives an exceedingly inadequate idea of the ordinary produce of this grain, the south, embracing the states mentioned on a preceding page, produced 27,878,815 bushels, valued at $25,090,933; the west produced 41,394,545 bushels, valued at $37,255,088; and the north produced 30,761,941 bushels, valued at $27,865,746.

The crop of wheat of the present year is probably the largest by far ever raised in this country, and will not probably fall short of 230,000,000 of bushels. With the surplus of last year still on hand we shall have nearly 70,000,000 of bushels for exportation to foreign countries.

What has been said in speaking of the exports of Indian corn, may be said, also, of wheat, that the amount sent abroad is regulated very much by the extent of the demand there. The surplus of this grain—that is, the amount that can be spared for shipment to foreign ports, over and above what is required for home consumption—is as elastic as India-rubber. If Europe wants our wheat, or our flour, and is compelled to pay good prices, either from a short crop, a disturbed state of political affairs, or any other cause, it is impossible to set bounds to our surplus, because the more she wants, the more we have to spare, and the less Europe, or any foreign country wants, the less we have to export. If little wheat is wanted abroad, it is used more freely at home, and the balance is stored for future use. If large quantities of it are required abroad, less will be used at home, the people resorting to Indian corn and meal to a large extent. The amount of export is, therefore, regulated by the price. If foreign countries are willing, or are compelled to pay for it, we can supply them to any extent under any ordinary circumstances. The export in 1846 was 13,268,175 bushels; in 1847, 12,309,972; in 1848 it reached 26,312,431 bushels, under the stimulus of the high prices consequent upon famine in Ireland; in 1849 it fell off to 10,366,417, and again, in 1850, to 8,656,982 bushels, when it began to increase again, and amounted in 1851 to 13,948,499, and in 1852 to 18,680,686; in 1853 it was 18,958,993 bushels, and in 1854 no less than 27,000,000!

In the statement of the above staple crops, little or no credit is given to the productions of California, which was admitted into the Union on the 9th of September, 1850. At that time it was not generally thought to rank anywhere as an agricultural state. Its wheat crop was returned, in 1850, at only 17,228 bushels; its Indian corn at only 12,236 bushels; and its other agricultural products in proportion. In 1852 the wheat crop of that state was less than 300,000 bushels, and the imports of flour in 1853 were no less than 500,000 bushels; it sold, at times, as high as fifty dollars a barrel. In 1859 the wheat crop was more than 6,000,000 of bushels, while the crop of 1860 very greatly exceeded that, so that many a shipload was exported to South America, Australia, China, and even to New York and Liverpool.

The corn crop of California has increased in like manner since 1852, when it amounted to only about 60,000 bushels. It was over 1,000,000 bushels in 1860! The barley crop is double now what it was in 1852; and the oats, which then were worth less than $100,000, are worth this year nearly $2,000,000. Then only about a hundred thousand acres were under cultivation in the whole state; now the number of acres is nearer a million and a half. Then, nobody thought the state would ever be able to raise even its own flour. Now, with less than a fortieth part of her lands under cultivation, she is exporting flour to foreign countries. California could probably support a population of twenty millions under a full development of her agricultural resources.

PRODUCTION OF OTHER GRAINS.

Rye is not, at the present time, so extensively used for food as formerly. The amount grown is, therefore, comparatively small. Rye was introduced and cultivated in all the colonies at the earliest periods of their settlement, and its meal was mixed with Indian meal for the making of bread, in New England, as early, certainly, as 1648, and perhaps even as early as 1630, and that custom became very common. The export of this grain has never been very extensive, and since the demand for wheat has been so much increased, its extent of cultivation has diminished rapidly.

In 1796, no less than 50,614 barrels of rye meal were exported from Philadelphia, and in 1801 the United States exported

392,276 bushels of rye. In 1812 the export was only 82,705 bushels.

The aggregate product of rye, as returned in the census of 1840, was less than nineteen millions of bushels, or 18,645,567, and this fell off, in 1850, to 14,188,813 bushels, a decrease of 4,456,744. The use of rye for the purpose of distillation and the manufacture of malt liquors is much less now than formerly, and this accounts for the falling off in its cultivation. It is, however, a profitable crop in New England, and a yield of from forty to fifty bushels to the acre is by no means uncommon, while the straw is in such demand, in many sections, as to enhance very materially its value as a crop.

Oats.—The culture of the oat is more extensive than that of rye. It was introduced into the colonies immediately after their settlement by Europeans, having been sown by Gosnold, on the Elizabeth Islands, as early as 1602, and cultivated to greater or less extent from that time to the present. But though much more extensively produced than rye, its consumption as food for animals is so great in this country, that it has never formed any considerable article of export, though an average of about 70,000 bushels was shipped for some years previous to 1820.

The yield of this crop in 1840 was returned as 123,071,341 bushels, and in 1850 it had increased to 146,584,179 bushels, a gain of 23,512,838 bushels.

The geographical distribution of this crop was as follows:—

The south raised 49,891,107 bushels, valued at $17,459,035; the west produced 37,122,771 bushels, valued at $12,992,971; and the north produced 59,570,301 bushels, valued at $20,817,175. Oats are grown in all the states, but by far the largest yield was in New York and Pennsylvania. The crop of oats for 1860, in New England, was larger and more abundant than was ever before known, unless, possibly, that of 1816 was an exception. It is, probably, at least 30 or 40 per cent. above the average, growing with a luxuriance which was a subject of universal remark among farmers.

Barley, like the other grains already mentioned, was sown on the first settlement of the colonies, having been first cultivated by Gosnold as early as 1602, on the Elizabeth Islands, on the Massachusetts coast, and by the settlers at Jamestown, in Virginia, in 1611, where, however, it soon gave way to the more lucrative production of tobacco. Samples of it were sent from the Dutch colony at New York in 1626. Good crops of it were raised in the colony of the Massachusetts Bay as early as 1630; and in 1796 the principal agricultural product of the state of Rhode Island was barley.

But this crop has never gained root to any extent in this country, either as a desirable product for home consumption or for foreign export. Its chief use has been for malting and distillation.

The census of 1840 returned the product of barley as 4,161,504 bushels, and this had increased in 1850 to 5,167,015 bushels, a gain of 1,005,511 bushels. It has doubtless increased some since, but not so as to become a crop of any great importance in a national point of view.

By far the largest portion of the crop of 1850 was raised in the northern states, which returned no less than 4,166,611 bushels, valued at $3,747,650; while the west raised only 842,402, valued at $754,161, and the south but 161,907 bushels, which was valued at $145,716.

Buckwheat.—This grain has never been cultivated to any great extent in this country, though it was introduced into the colony at Manhattan Island by the Dutch West India Company, and raised there as early as 1625 or 1626. Its culture was continued by the Dutch to some extent, and they used it as provender for horses. It was also cultivated by the Swedes, who settled along the Delaware in New Jersey and Pennsylvania.

Not being extensively cultivated, it has not, of course, entered much into our commerce, though it has been shipped, to some extent, in the shape of flour. The quantity returned by the census of 1840 was 7,291,743 bushels. This had increased in 1850 to nearly nine millions, or 8,956,912 bushels, a gain, in the ten years, of 1,665,169 bushels. It is probable that the next census will return the crop of 1859 as upward of eleven millions of bushels, with a value of about $4,500,000.

The geographical distribution of the crop of 1850 was very nearly as follows:—

The south raised 405,357 bushels, valued at $202,678; the west raised 1,578,578 bushels, valued at $789,289; the north raised 6,971,667 bushels, valued at $3,485,833.

The cultivation of buckwheat has the effect to cleanse the land, which has been

one reason for its increase, while the price it commands makes it a profitable crop.

CLOVER AND GRASS SEED.—In connection with the smaller grains should be mentioned the production of clover seed, and that of the various grasses, which, in some sections, has become an item of some importance.

The census of 1850 returned the amount of clover seed produced as 468,978 bushels. Of this, Pennsylvania raised by far the largest quantity of any one state, and Ohio came next.

The amount of grass seed raised was 416,831 bushels, and in this product New York took the lead of all the states, exceeding the next highest producer, New Jersey, by more than thirty thousand bushels.

Of the clover and grass seeds together, the south raised 123,517 bushels, valued at $370,551; the west raised 142,764 bushels, valued at $428,292; and the northern states raised 619,501 bushels, valued at $1,858,503.

THE POTATO.

The potato is more universally cultivated in this country than any other crop, except, perhaps, that of Indian corn. At what time it was first introduced, as a cultivated plant, into the American colonies, is not known, but it was, no doubt, soon after the settlement. It is mentioned among the seed ordered for the Plymouth colony, as early, certainly, as 1629, but it was not recognized, probably, as an indispensable crop, till near the middle of the last century, when it appears to have been very widely known and esteemed. As many as 700 bushels were exported from South Carolina in 1747, and in 1796 no less than 9,004 bushels were shipped from Philadelphia.

It is well known that the sweet potato was first introduced, and came to be regarded as a delicacy in England, and the allusions to the potato by the earlier English writers who mention this plant, refer to the sweet, and not to the common potato.

It has formed a somewhat important article of export, though by no means to be compared, in this respect, with wheat and Indian corn. We exported in 1821-2 about 129,814 bushels, valued at $45,758. In 1844-5 the export amounted to 274,216 bushels, valued at $122,926, and exportation has continued, to some extent, every year since then. The number of bushels of potatoes returned by the census of 1840 was 108,298,060. In 1850, owing to the prevalence of the disease, it fell off to 104,056,044 bushels, of which 38,268,148 bushels were sweet potatoes. The crop may now amount to 125,000,000 bushels.

PEASE AND BEANS.—Though not entering extensively into the commercial interests of the country, the product of pease and beans is still important, both from its extent and value for home consumption.

Beans are said to have been first cultivated by Capt. Gosnold, on the Elizabeth Islands, as early as 1602. They appear to have been cultivated by the Dutch, at Manhattan, in 1644, and about the same time in Virginia. But it is well known that beans were cultivated by the natives, long before their introduction by the whites, and it is probable that pease were, also.

In the year 1755, the amount of pease exported from Savannah was 400 bushels, and in 1770, 601 bushels. The amount exported from Charleston in 1754 was 9,162 bushels. North Carolina exported 10,000 bushels in 1753.

The total amount exported annually from the United States for twenty years previous to 1817, was 90,000 bushels, while the beans annually exported during the same period amounted to from thirty to forty thousand bushels.

The census of 1850 returned the amount of pease and beans as 9,219,901 bushels. The value of these crops exceeded $16,000,000.

THE GRASS AND HAY CROP.

Owing to the necessity that exists throughout all the northern portion of the United States to stall-feed the stock from three to six months of the year, the grass and hay crop assumes there an importance which it has not in the more southern portions of the country.

I have alluded, briefly, on a preceding page, to the fact that, at the time of the early settlement of the colonies, no attention had been paid in the mother country to the cultivation of either the natural or the artificial grasses. Attention to this branch of farming was gradually forced upon the settlers of the more northern portions of the country. For want of sufficient and suitable winter nourishment, the cattle, which were scarce and expensive, were often found dying of starvation, notwithstanding the efforts made to secure a supply of salt hay from the many marshes in the vicinity of the Plymouth and the Massachusetts, as well as the Dutch and Swedish colonies.

It was, no doubt, many years before it became possible, in the nature of things, to provide full supplies for their cattle, and it was not unfrequently the case, even after the culture of grasses was introduced, that the cattle were obliged to browse in the woods in a long and hard struggle for life, owing to the loss of crops by drought and imperfect cultivation.

The cultivation of timothy, the most important and valuable of the forage grasses, was not introduced, according to Jared Eliot, who wrote in 1750, till a few years previous to that date, having been found by one Herd, in a swamp near Piscataqua. He propagated it till it was taken to Maryland and Virginia by Timothy Hanson, after whom it is most frequently called. The well-known orchard grass was cultivated as early as the middle of the last century, for we know it was introduced from Virginia into England in 1764, or thereabout. The June, or Kentucky blue grass, was probably indigenous, and sprung up in the pathway of the settlers, as it does now, wherever the footstep of civilization penetrates. But it was not till a recent date that the general culture and improvement of the grasses received the attention it deserved.

The grasses spring up almost spontaneously in many localities, it is true, otherwise the settlers would have suffered far more severely than they did. From the time when the great mandate went forth, even before the creation of man, "Let the earth bring forth grass," it has been a law of nature to clothe the earth with verdure as soon as the advance of civilization lets in the light upon the soil by the first clearings of the pioneer settler.

The progress made in the cultivation of grasses and the production of hay has been greater within the last half century than ever before. This will appear, especially when we consider the improvement in the means of cultivating and harvesting the crop. The culture of clover had been commenced, in some parts of the country, previous to that time, but it had not established itself in the farmer's favor to any very great extent, and the indigenous grasses were chiefly relied on, while the seed used in many parts of the country was that which had fallen from the hay-mow, foul, of course, and full of weeds.

According to the census of 1840, the hay crop of the United States was 10,248,108 tons. In 1850 it was 13,838,642 tons, an increase of 3,590,533 tons. The hay crop of the present year cannot be less than 15,000,000 tons, with a value certainly not less than $150,000,000. To this is to be added the value of the grass crop, which is not less than that of the hay, and we have an annual production of at least $300,000,000, an amount nearly equal to all the other agricultural products of the country, excepting wheat and Indian corn.

The production of hay is, to a certain extent, a tax upon the farmer imposed by the severity of climate. In a mild climate and short winters, the necessity for curing hay in any considerable quantities is avoided. Less hay is made, of course, at the south than at the north. The same number and size of cattle would require less artificially prepared fodder in a mild climate than in a severe one. Maine, for instance, raised 755,889 tons of hay, and kept 385,115 head of cattle and horses, consuming about two tons a head on an average. Illinois, with 601,952 tons of hay, kept 1,190,264 head of cattle and horses, using but little over half a ton per head; while Alabama, which made only 32,685 tons of hay, kept 915,911 head of cattle, the proportion being but one ton of hay to thirty head of cattle. There is, it is true, some compensation in this, as in most other things, and that is the extreme difficulty of growing the ordinary natural grasses in a southern latitude, on account of the severe drouths. It is almost impossible to produce a fine, close, permanent turf south of the 39° of latitude, and considerable quantities of cured hay are taken from the northern and eastern ports to most of the southern ports every year.

There is, also, another most important compensation in the greater facility afforded by the wintering of cattle for economizing manure, and thus keeping up the fertility of the soil. For example, tobacco culture is said to have impoverished the soil of Virginia. One reason for it was, that keeping comparatively few cattle, and never housing them, but rather "browsing" them from one year's end to another, there was no possibility of saving and making a great quantity of manure. Till the introduction of guano, it was extremely difficult to get manure for the tobacco field, and exhaustion was inevitable. In Massachusetts, on the other hand, there is no crop that a wheat or corn crop will follow so well as that of to-

bacco, for the reason that the grower, knowing the requirements of the plant, manures it very highly, as he easily can, and the soil, instead of being exhausted from year to year, is actually growing richer. Increasing the hay crop, therefore, notwithstanding its cost, enables the farmer to keep more stock in such a manner as to make more manure, and more manure enables him to keep up the fertility of the land.

We are not surprised, therefore, to find the geographical distribution of the crop as returned in 1850 as follows:—

The north produced 9,473,605 tons, valued at $94,736,050; the west produced 3,227,253 tons, valued at $32,272,530; the south produced 1,137,784 tons, valued at $11,377,846.

There can be no reasonable doubt that the quality of hay made now, over that usually made in former times in this country, has been improved, to say nothing more of the vastly improved facilities for harvesting it. More correct ideas are entertained of the extent and mode of curing it, and the quality is improved in proportion as a higher knowledge is brought to bear upon it.

THE CULTURE OF FRUIT.

The establishment of state and county agricultural societies, and of stated exhibitions, in which the products of the orchard and the garden had a prominent place, introduced a new era in the culture of fruit. The early settlers made some attempts to introduce apples and pears, some bringing with them the seeds of these fruits, with the supposition, no doubt, that they should have the like again.

The first apples raised in this country were, probably, from trees planted on Governor's Island, in the harbor of Boston, from which, on the 10th of October, 1639, ten fair pippins were brought, "there being not one apple or pear tree planted in any part of the country, but upon that island." Governor Endicott had on his farm in Salem, now in Danvers, in 1640, the first nursery of young fruit trees that was ever planted in this country; and it is related that he sold five hundred apple trees for two hundred and fifty acres of land, or at the rate of two trees for an acre—a *good bargain* for the purchaser, if he took good care of his trees.

But the cultivation of fruit was extremely rare in the early history of the country. Indeed, it could hardly be said to have been cultivated at all, as a part of the produce of the farm, till a comparatively recent date. At the close of the Revolution, and, in fact, at the end of the last century, it would have been impossible to have found in the whole country the number and varieties of good fruits which might now be found in a single good farming town. There were orchards of seedling apples, and many of them were far better than none, but that is nearly all that can be said for them. They were raised chiefly for the making of cider. Most of the favorite varieties of the present day had then no existence; and if any very superior apple had existed in any isolated locality, it could not, from the very nature of things, have become generally known and appreciated, for, as we have seen, the barriers which separated the rural population of that day were so great as often to leave them in ignorance of what was passing, even in a neighboring town. A seedling equal to the Baldwin apple might have remained unknown twenty miles off from the beginning to the end of the last century. Apples were apples, and all apples were fit to make cider, and that was enough.

It was regarded as absurd for any but a young man to set out trees; and when a man of seventy began to plant an orchard, the idea was so ludicrous as to subject him to the ridicule of the whole neighborhood.

But, during the first quarter of the present century, many large orchards were planted in different parts of the country, still with particular reference to the production of cider. The fruit crop of the country was of so little importance as not to have been thought worthy of a place in the collection of our national statistics, even so late as 1830; now it amounts to considerably over thirty millions of dollars a year, and is fast growing to be one of the most important products of the country, the annual sales numbering hundreds of thousands of barrels.

The oldest horticultural society in the United States was founded only about thirty years ago (1829). For some years such associations were few and feeble, on account of the want of sufficient public interest in the subject. Fruit of the choice varieties was a luxury which could be enjoyed only by the wealthy. Now there is scarcely a cottage in a country town or village which has not its grape vines, or its apple or pear trees. The public no longer ridicule the man who

plants choice trees, with the hope of enjoying their fruit. Modern science, in this direction, secures speedy returns.

The American Pomological Society was established in 1848, and since then kindred societies have been established in several of the states, and are exerting no small degree of influence. It is scarcely twenty-five years since two or three small nurseries in the vicinity of our large cities, occupying not over five hundred acres in the whole country, supplied the wants of the United States and the Canadas. Now there exist more than a thousand nurseries; and in one county of New York alone—that of Monroe—there are between three and four thousand acres, producing every year more than $500,000 worth of trees; while there are sold every year, in the whole country, from fifteen to twenty millions of trees, with a value of $5,000,000. It is estimated that the nurseries of Onondaga, and the neighboring counties of New York, contain at this moment at least fifty millions of trees for sale. These figures give but an inadequate idea of the actual present extent of this great business of the country, but they are sufficient to indicate the wide-spread interest in the cultivation of fruit among the people.

It is a gratifying fact that our native fruits are appreciated as they deserve. Of the thirty-six varieties of apples recommended by the American Pomological Society for cultivation, thirty are natives; of the fourteen varieties of plums, ten are natives; and so are more than half the pears and all of the strawberries. It is not many years since all the strawberries in our markets grew wild and were brought from the fields, when not a single variety had been produced by hybridization in America. Last year a single cultivator in Massachusetts grew them at the rate of 160 bushels per acre, and sold them at the rate of $1,300 per acre; while others, in Connecticut and other states, did even better than that, from seedling varieties. The fruit crop of Massachusetts was officially returned in 1845 at $744,000; while in 1855 it amounted to $1,300,000; and in 1860 to upward of $2,000,000; and the increase in many other parts of the country has been in a similar or even greater proportion. In the fall and winter of 1858–59, there were exported from the port of Boston alone no less than 120,000 barrels of apples, mostly Baldwins. The product of fruit for 1860 is, larger, by 200 per cent., probably, than it ever was before. The two or three preceding years were comparatively bad fruit years, and in the meantime thousands of young trees have come into bearing which never bore before. The crop of 1860 is, therefore, wonderfully large, and of unsurpassed excellence.

The climate of the southern states has often been stated to be unfavorable to the growth of our common staple fruits, except peaches, figs, oranges, and the like; but experience has shown that it is not so. There is one orchard in Mississippi of 15,000 pear trees, another in Georgia of 9,500; and in other sections, where the effort has been made, success has almost invariably attended it. It is true, the pomology of the south is in many respects peculiar. The mistake has been in selecting northern varieties, instead of seedlings of the south and other native varieties, many of which are found to exist, and to be superior in size, flavor, and beauty, while in keeping qualities they are not inferior to good northern varieties.

The south can, therefore, raise apples in large quantities, and of a very high quality, by the selection and proper cultivation of varieties adapted to its soil and climate. The few earnest and intelligent pomologists who have had long experience there, rank the apple as the surest and most reliable of all fruits except the grape. So far, comparatively little attention has been given to the culture of the apple and the pear by the mass of southern planters; partly, no doubt, from an impression that such fruits were not suited to that locality; but the experience of the most intelligent horticulturists in that part of the country has, I think, fully established its practicability, especially for the native southern winter varieties. And so of the pear. Very many of the favorite varieties at the north grow and bear well at the south, either as standards or dwarfs, in a deep, mellow, well tilled soil, care being taken to train the top of the tree low and spreading, so as to shield the trunk and the root from the too fierce rays of the sun. And as to the peach, it is at home at the south, and grows in the highest degree of perfection. One grower in that part of the country sends north from seven to ten thousand dollars worth of peaches every year before they are ripe in the middle states.

Now if such are known to be the results

of only ten, fifteen, and twenty years of enterprise in this branch of rural economy, what may we not anticipate when the vast number of young trees planted in the middle and eastern states within the last five years, come into bearing? If any one is disposed to feel disheartened at the prospect of sales, or fear the market will be glutted, let him take courage in the fact that the demand is ever on the increase, not only from the multiplication of consumers, but from the fact that there is a growing conviction that fruit is the most healthful food. The exportation of fruits, particularly of apples, is rapidly increasing. But that the present comparative abundance has not diminished the profits of fruit-growing, the Fruit-Growers' Society of Western New York state through a committee that three white Doyenné pear-trees, owned by Mr. Phinney, of Canandaigua, one of them small, produce annually from $50 to $60 worth of fine fruit, while another of the same variety, in the same place, seventy years old, has not failed of a good crop for forty years, and has averaged twenty bushels a year for twenty years, which have been sold on the tree for $60 a year. This one tree has produced for the New York market $3,750 worth of pears. Three large trees of the same kind, owned by another individual, yielded in 1854 eleven barrels, which sold for $137.

Then, too, we are to include the luxuriant growth of fruits in California, now becoming celebrated as a fruit-growing region. Five years ago the apple-trees in that state scarcely numbered a hundred thousand; now, in 1860, there are more than a million trees in bearing. Peach-trees then numbered only a hundred and seventy thousand; now, there are more than a million and a half. Pear-trees have increased in five years from twenty thousand to three hundred thousand; apricots, from four thousand to a hundred and fifty thousand trees; plums, from ten thousand to a hundred and thirty thousand; and grape vines, from three hundred thousand in 1855, to eight millions in 1860! The number of vines more than doubled in two years from 1856 to 1858. A popular writer says the growth on the grape-vines the last year would make one long green creeper that would reach from San Francisco clear across the continent, and then over the sea to England. "Who knows," says he, "but what Englishmen will yet suck their wines from California cellars? At the rate we are going on, somebody has got a great deal of wine-drinking to do, to use up the California production of ten years hence. But people must make up their minds, or their palates, to like still wines that are at once fiery and sour, if they intend to patronize California vineyards, and rejoice in the plenty and cheapness of our products; for our grapes insist on being sweeter than the best grapes of which foreign wines are made. They contain 20 per cent., of sugar against 13 11-100 per cent. in foreign-grown specimens, while the proportion of free acid is much less. As a consequence, there is 15 per cent. of alcohol in our light wine, which is double what is detected in the European light wines, and nearly as much as is contained in the stronger ports, sherries, and Madeiras." The value of the grape crop two years ago (1858), amounted to $1,000,000, and it amounts now, probably, to over $8,000,000.

The culture of the vine in California is very simple, and gives astonishing profits. An acre in ordinary calculation is enough for a thousand vines; and each vine in full bearing will produce a gallon of wine. The average of well-managed vineyards is often much greater, and two or three gallons to a vine is no uncommon product. A good man, with a horse and plough, and at work only about eight days in the year, can tend from eight to ten acres of vines. The grape flourishes in all parts of California, but the counties of Los Angeles, San Bernardino, and San Diego are, perhaps, the most noted, though the Napa valley, and many other localities, are about equally suited to it. The capabilities of the three counties above named, for the production of the grape, are ascertained to be equal to 100,000,000 vines, or more than 100,000,000 gallons of wine a year!

About 650 vessels leave the Mediterranean for this country every year, loaded with figs, lemons, oranges, limes, almonds, and the products of the vine, the whole amounting to about seven and a quarter millions of dollars. Time will show that California can easily produce all these products of an equal quality, and in abundance sufficient to supply the whole country, and still have a surplus for her own consumption. That this statement is by no means extravagant, is evident from the fact that the growth of the grape during the last three years surpasses any thing ever known in the most highly

favored regions of the Rhine, Italy, or France.

A pear-grower of Roxbury, Mass., has one acre devoted to this fruit, the oldest trees being about twenty years old, but more than half of them young. From two trees, the Dix and Beurré Diel, he has taken more than one hundred dollars worth a year, and from the whole acre more than a thousand dollars a year. Another prominent pear-orchardist in Brighton, Mass., commenced operations in 1841 with eight trees on the ground. He has now 1,200 trees, set out in different years, more than half of them since 1854. Since that time he has received from five to six hundred dollars a year for his crop, and says that if he had confined himself to a judicious selection of varieties, his crop would now bring him over $2,000 a year.

These are, of course, special cases, but instances of a similar kind might be multiplied almost indefinitely, showing that where good judgment and skill are used, success is comparatively sure. No other country offers such opportunities to the scientific pomologist, or to the farmer, for the growth of apples and pears, and it is not probable that the supply will reach the demand for many years to come.

Nor has the culture of the cranberry, and other smaller fruits, been neglected. The practical cultivation of the cranberry is of very recent date, having commenced on Cape Cod, where several hundred acres of cultivated plants are now in profitable bearing condition. Its culture is rapidly extending to other parts of the country, where suitable lands exist.

The census of 1840, the first to take note of the extent and value of the orchard and garden products of the country, makes the fruit crop of that year, or rather of 1839, to be $7,256,904, in addition to 124,734 gallons of domestic wine. The census of 1850 states the amount of orchard products at $7,723,186, and 221,249 gallons of domestic wine, showing an increase of only $466,282 in the value of fruit, and 96,515 gallons of wine. This was thought by some to be too low, but it should be borne in mind that the interest in fruit culture, now so very general and widespread, had hardly begun in 1840, and though it rapidly increased, so that young orchards had very greatly multiplied all over the country in 1850, they had not then come into full bearing. Nor was the manufacture of wine any thing like so extensive as it has since become. The census of 1860 will present us with far more gratifying results.

It is perfectly proper to ascribe a large proportion of the increase of orchards and fruits, and of the interest manifested in them, which for the last ten years has been wholly without a precedent in this country, to the influence of the agricultural exhibitions, and to the multiplication of the valuable treatises and periodicals on the subject, calling the attention of the people to the vast amounts of money which had been spent yearly in importing grapes, wines, figs, prunes, raisins, currants, and even pears,* from foreign countries, all of which might be raised here equally well, and to the inexhaustible treasures which were within the reach of every landholder; all that was wanting being the proper exertion to develop them. For several years Hovey's *Magazine of Horticulture* was the only periodical exclusively devoted to the garden and the orchard, and that was confined chiefly to the few who gave their attention especially to fruit culture. Previous to the appearance, in 1845, of Downing's "Fruit and Fruit Trees of America," Manning's "Book of Fruits" and Renwick's "American Orchardist" were the only popular works which had any considerable circulation, the admirable treatises of Coxe, Prince, and a very few others, being confined chiefly to professed horticulturists and nurserymen. Downing's work was, in fact, the first that had a quick and extensive circulation among the people. It appeared just at the time when the want of such a work began to be widely felt; while he had the immense advantage of the information which had been industriously accumulated by the Massachusetts and the London horticultural societies, and by the labors of some of the most noted horticulturists in the country, who had been constantly experimenting and importing new fruits, multiplying seedlings, and improving the nomenclature of varieties.

Then appeared Thomas' "American Fruit Culturist," a valuable popular work after Downing's plan, and Cole's "American Fruit Book," a storehouse of valuable information, in such small compass as to come within the easy means of every one. All these works contributed largely to diffuse a more correct

* So recently as 1851 a considerable quantity of pears were actually imported from France by the New York confectioners.

taste, and to excite a wide-spread interest in the subject; and they are entitled to great credit as being, in some measure, the pioneers in this department.

But yet, though many grand results have already been obtained, the science of pomology is still in its infancy, and far greater results may be confidently expected hereafter.

From the progress in the cultivation of fruits, which has been styled by some the poetry of farming, let us turn to the

CULTURE OF TOBACCO.

No sooner had Columbus landed on the island of Cuba, in 1492, than a gentlemanly chief very politely offered him a cigar. From that day to this the plant has grown rapidly in favor, and from being the solace of the roaming savage of America, it has become a luxury, universal as the habitation of the globe. It has been truly remarked that every country or tribe of human beings has had, from time immemorial, its own peculiar narcotic, either aboriginal or imported, and that the universal instinct of the human race has led, somehow or other, to the universal supply of this want or craving; as, for instance, tobacco in America and its islands; the thorn apple, cocoa, tobacco, and hemp in South America; hops and tobacco in Europe; hemp in Africa; aminita, opium, betel-nut, and tobacco in Asia; showing that it is natural for man, after supplying the necessities of life by food, to desire to multiply his enjoyments, intellectual and animal, and for the time to exalt them; and we cannot ascribe so universal a habit, increasing with the growth of population, to mere whim or fancy for self-indulgence. It is, perhaps, a necessity imposed by nature, and second only to that greater necessity, the satisfaction of the craving of hunger.

Certainly, the extent to which it is cultivated, occupying so large a proportion of the best arable lands of some countries, which are equally adapted to wheat; its great importance in a commercial point of view, and the variety of ways in which it is employed to gratify the senses, present a striking feature in the history of the human race.

"Thy quiet spirit lulls the lab'ring brain,
Lures back to thought the flights of vacant mirth,
Consoles the mourner, soothes the couch of pain,
And breathes contentment round the humble hearth;
While savage warriors, soften'd by thy breath,
Unbind the captive hate had doom'd to death."

It has steadily pushed its way in the face of every opposition which ridicule, prejudice, legislative prohibition, threats of excommunication, and every conceivable persecution could bring against it, simply because nature demanded its use in some form or other. The celebrated Locke took a more rational view, and said, "Bread or tobacco may be neglected, but reason at first recommends their trial, and custom makes them pleasant." But, on the other hand, "the most high and mightie prince," James I., by the grace of God king of Great Britain, "a slave to vices which could not fail to make him an object of disgust," took a different view of the prevalent practice, and wrote a "Counterblaste to Tobacco," stigmatizing its use as "A custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs, and in the black, stinking fume thereof nearest resembling the horrible Stygian smoke of the pit that is bottomless." Every thing which is really and truly founded in nature and reason, however mysteriously, will ultimately prevail, whoever sets himself up to oppose it; and the progress of the culture and use of this plant is an instance of it. King James wrote in 1616, and in 1624 Pope Urban VIII. published a decree of excommunication against all in the church who took snuff; and in 1634 smoking tobacco was prohibited in Russia under penalty of having the nose cut off; and in Transylvania the penalty for growing this plant was a confiscation of the farmer's whole property; and even so recently as 1719 the senate of Strasburg forbade the cultivation of it, from the fear of its diminishing the culture of corn. But "they manage things better in France," and the far-sighted Richelieu imposed upon it a duty, very small at first, which continued till 1674, when the government of Louis XIV. increased the duty, and made the culture and trade in tobacco a monopoly, and granted it to an individual for six years, in consideration of the payment to the government of the large sum of $145,000. In 1720 the consideration was increased more than 100 per cent., and in 1771 it amounted to $5,500,000 a year. In 1844 the revenue from tobacco alone yielded the French government the enormous sum of $20,000,000, and it has since constantly increased on an average from half a million to a million dollars a year. So much for Richelieu; and it must be admitted, even by the most prejudiced opponents of tobacco, that this policy was more sensible than that of his neighbors

who mutilated, and some of whom cut off the heads of all smokers.

The English first saw it cultivated, and smoked in clay pipes, by the Indians of Virginia, in 1585, and it was probably introduced into England by Raleigh, as early as 1586. In 1615, the gardens, fields, and streets of Jamestown, Virginia, were planted with tobacco, and it became not only the great staple, but, according to Bancroft, the chief currency of the colony, and in 1622 the product was 60,000 pounds. During the next twenty years it doubled, and amounted to 120,000 pounds, and since 1689 the produce of Virginia alone has increased to twice as many millions of pounds.

The introduction of tobacco culture into the Dutch colony of New York took place as early as 1646, and it sold then at forty cents a pound. The "Company of the West" introduced it into Louisiana in 1718. Previous to the revolutionary war its culture had extended into Maryland, the Carolinas, Georgia, and Louisiana, and nearly all Europe was, at that time, supplied from the American colonies. Since that time the cultivation has greatly extended in this country, not only into new states and territories, but in the aggregate amount raised. The quantity exported has also very largely increased. The amount consumed in Great Britain alone exceeds 35,000,000 pounds, and that, too, with a duty of about seventy-five cents a pound.

The annual export from the colonies for ten years previous to 1709 was 28,868,666 pounds. From 1744 to 1776 the exports of tobacco averaged 40,000,000 pounds a year. The tobacco exported from Virginia in 1758 is said to have been no less than 75,000 hogsheads, and from that time till the Revolution, the amount averaged 55,000 hogsheads a year. About 30,000 hogsheads were shipped from City Point, in Virginia, in 1791, and in 1795 the amount fell to 9,475 hogsheads. There were exported from North Carolina 100 hogsheads in 1753, while from Georgia, in 1722, there were shipped 176,732 hogsheads. South Carolina exported 2,680 hogsheads in 1783, and 4,294 in 1795. The quantity exported from Philadelphia in 1796 was 3,437 hogsheads.

According to the census of 1840, the amount raised in the United States was 219,163,319 pounds. The census of 1850 returned but 199,752,655 pounds, showing a decrease of 19,410,664 pounds. There has, no doubt, been a considerable increase in its production throughout the country, notwithstanding an apparent falling off as shown by the census. The crop is liable to many casualties—to damage by insects, hail, drought, frosts, or an otherwise bad season at harvesting—so that the product of any one year, like that of 1849, on which the returns of the last census were based, cannot be taken as a fair annual average. So great is the demand for home consumption and for foreign exportation, that the profits of tobacco are usually very great, operating as a constant stimulus to a more extended culture.

Of the amount returned by the last census, Virginia raised 56,893,218 pounds, and Kentucky 55,501,196 pounds, making, together, more than half of all that was raised in the United States. But, since 1849 the use of guano has become far more extensive than it had previously been, and the yield of this ravenous crop on the lands said to have become exhausted from long-continued culture, has been very greatly enlarged in consequence. In the meantime, its cultivation has gradually been extending northward, and the produce of Connecticut and Massachusetts has been much increased. The produce of the latter state has, probably, been more than quadrupled within the last five years.

Tobacco is usually called an exhausting crop. This depends very much upon the kind and quantity of manure used. If the mineral constituents taken from the soil, and represented in the ash of the plant, are supplied by judicious cultivation, there is little difficulty in cultivating and producing large crops, and it is a common remark of the best farmers along the Connecticut river, that wheat or any other crop will follow tobacco, even better than most other crops, for the reason that the high manuring for tobacco keeps the land in good heart. But the planters in Virginia cultivated it for many years in succession on the same lands, without supplying a sufficiency of manure. The land, of course, must feel the loss in time, and the yield, previous to the introduction of guano, had dwindled down in many localities so as not to pay the producer. Every ton of tobacco, perfectly dried, carries off some three or four hundred weight of these most important mineral substances, and it should be the aim of the farmer to supply them liberally, if he expects a liberal reward in an abundant harvest.

The geographical distribution of the product, the amount of which has already been stated, was nearly as follows: The south raised 185,023,906 pounds, valued at $18,505,390. The west raised 12,358,879 pounds, valued at $1,236,886. The north raised 2,383,208 pounds, valued at $238,320.

In this connection, it would be a matter of no small interest to ascertain, if possible, the number of hands the cultivation, curing, and the various processes of manufacture give employment to. It is, unquestionably, very large in this country, but the census does not appear to state it. In the city of Hamburg (Germany) alone, this manufacture gives employment to upward of 10,000 persons, and it supplies 150,000,000 cigars a year, with a value of $2,000,000—a matter of no small importance. Hamburg imports from Havana and Manilla about 18,000,000 cigars a year; and, with its own production, the aggregate number is 168,000,000 cigars. 153,000,000 of these are exported, and the remainder, or 15,000,000, are consumed in that city; giving 40,000 as the daily consumption, in a population of 45,000 male adults. The consumption of tobacco in England in 1821, with a population of 21,282,960, was no less than 15,598,152 pounds, or 12 ounces per head of the entire population. In 1831, with a population of 24,410,439, the consumption reached 19,533,841 pounds, or 13 ounces per head. In 1841, with a population of 27,019,672, the consumption was 22,309,360 pounds, or 13½ ounces per head. And in 1851, population 27,452,692, the consumption of tobacco was 28,062,841 pounds, or 17 ounces per head, showing a steady increase. In France the consumption amounts to 18½ ounces per head, nearly half of which is in the form of snuff. The consumption of Denmark, in 1848, amounted to 70 ounces per head, or 4½ pounds. In Belgium, it averages at the present time about 73½ ounces per head. The average consumption of tobacco by the whole human race of 1,000,000,000, is 70 ounces a head, the quantity consumed being 2,000,000 tons, or 4,480,000,000 pounds.

"The annual production of tobacco weighs as much," says a popular writer on this subject, "as the wheat consumed by ten millions of Englishmen; and its money value is as great as that of all the wheat consumed in Great Britain."

But as it is estimated that the earth is capable of supporting a thousand times more people than at present exist, the large consumption of this plant need not alarm those who eschew it, especially as the consumption of tea and coffee, as essentially injurious to health, is even greater and more universal.

That the lands of Virginia should have become impoverished from long-continued cropping, without a supply of manure, is not a matter of surprise, when we consider the length of time in which that process was going on, and that, instead of consuming the product on the ground, or in the neighborhood, it was mostly exported for consumption to foreign countries; but it is not the fact that the soils, now said to be impoverished, were ever so rich as the prairies and river bottoms of many sections of the west, with which they are so often compared. Still, the tendency of farming in a sparse population is to deterioration, from the very fact that the bulk of farm produce must be sent off the farm in exchange for other commodities. The most profitable farming, in the long run, is that which combines various kinds of produce, a considerable proportion of which must of necessity be consumed on the farm itself, or at least near home. Where the population is sparse, and there is no demand at home for farm produce, the farmer is compelled to raise such articles as will bear distant transportation, and follow this course year after year. He cannot, if he would, grow the articles which would be the least exhausting to his land. The Virginia tobacco planter of the last century and the early part of the present, had no means of restoring the fertility of his soils by supplying the vast amount of mineral constituents which the constant cropping and removal by transportation took away from his farm. He could not, or would not keep much stock to supply sufficient manure; and if he kept stock, the winters were mild, and they were never housed and so managed as to produce much manure. Cattle allowed constantly to run at large, and browse in the woods summer and winter, would do little to prevent the deterioration of the soil. It would have been better for the land if the planter had been obliged to cultivate and cut grasses for winter fodder, and then keep up his stock to consume it. The Belgian proverb is everywhere true: "No grass, no cattle;

no cattle, no manure; no manure, no crops." The worst effect of a system of exchange of agricultural products with other nations, by which we receive their manufactured goods, which possess great value in proportion to their bulk and the raw material consumed in them, is that we send off annually to them thousands of tons of the highest fertilizing elements, which nature requires should be again returned to the land in the form of manure. But we are sending off $35,000,000 worth of breadstuffs, and other products, like tobacco, in addition, which in themselves must of necessity draw largely upon the fertility of the soil, while we do not pretend to make an adequate return of fertilizing substances to it.

Other nations, like England, for instance, importing thirty millions worth of breadstuffs, have the benefit of their consumption, in addition to which they are constantly importing manures of every description. While we are constantly, and without stint, shipping off a continual stream of the most valuable manures concentrated in the form of our cotton, our tobacco, our wheat, and Indian corn, they, with ceaseless care, are husbanding the fertility which these naturally carry along with them, and adding vast quantities of guano, bones, phosphates, etc. They reap the harvest in soils growing richer and richer. We may make individual profits, which go, for the most part, into the hands of middle men, and leave our farms to reap the shadow.

The inevitable tendency of exchanging the produce of the soil for manufactured articles has always been, and always will be, to impoverish the nation that does it, unless there is care and forethought enough to import an amount of fertilizing substances equal to what we send away; and this cannot be. The farmer himself does not want it so. If he sends wheat enough to half feed a foreign mechanic or operative in the city of Sheffield or Manchester, he would infinitely rather sell him enough to feed him in full nearer home; and it would be better for him and for the nation to have it so.

CULTURE OF HOPS.

Of the crops which still remain to be mentioned, and which help make up the aggregate of the products of American agriculture, that of the hop forms no unimportant item, since, besides the quantity required for export, which, to be sure, is not very large, it enters more or less into the consumption of almost every family in the country.

This plant, like many others, dates its introduction to this country almost back to its first settlement; for we read in the records of the colony of the Massachusetts Bay, that "hop rootes" were ordered by the governor and company as early as 1628 or 1629, and though it was for many years cultivated only on a very limited scale for family consumption, yet no doubt it has continued as one of the cultivated plants of the country from that day to this. It was introduced and cultivated by the Dutch colony of New York as early as 1646, and it is known to have been brought into Virginia previous to 1648. In 1657 its culture was encouraged by legislative enactments.

At the beginning of the present century, the amount cultivated in New England was extremely limited. Thirty thousand pounds, perhaps, comprised the entire crop of that section, increasing some years to fifty thousand. The mode of picking and drying was objectionable and defective. The hops were picked in clusters, with the stems and leaves often thrown in; while the drying was universally done with wood, and when taken from the kiln they were "brown as a leg of bacon and about as much smoked."

The first use of charcoal for drying hops in this country was probably in 1791, when it was tried, only on a very limited scale, at the suggestion of a Scotch brewer, and produced the most beautiful kiln of hops that had ever been dried in America. It was owing to this improvement in the picking and drying that the demand for the article rapidly increased, soon doubled and tripled, and slips or cuttings to form new plantations soon rose to exorbitant prices. It had been the universal custom, previous to that time, to pack the hops in round bags, without any uniformity in length or size, and they were trodden down with the feet in a rude manner. The consequence was that the tops were bruised and broken, causing great loss in the strength and value of the hops by evaporation of the essential juices of the plant, its most valuable properties, to say nothing of the impossibility of packing closely for transportation. The use of square bales was introduced in 1797; or the year after, and the use of screws in packing was then commenced. The superiority of this mode soon became so apparent, that it was generally adopted not long after. Previous to this

time, also, difficulties not unfrequently arose between merchants, from the fact that old and refuse hops were found mixed in with the good ones, while no proper distinction was made between the different grades or qualities. Vexatious lawsuits sometimes resulted from these circumstances, and the price of good hops was naturally lower than it otherwise would have been. The legislature of Massachusetts, to remedy these evils so far as they existed in that section of the country, created the office of inspector-general of hops in the year 1806. It was the first movement of the kind in the country, and, so far as I am informed, the first of the kind in the world.

But there were no precedents for classifying hops, and some system was to be adopted. Some hop dealers and many hop growers were opposed to a high standard of inspection. Many difficulties of a personal nature had to be encountered; but, owing to the conscientious use of the "first-sort" brand, the hops raised in that part of the country soon became noted as the best by far in the United States. By adopting a high standard of inspection, the growers were soon brought to improve their hops, in order to bring them up to the "first sort," and the facts and character of such an official inspection becoming immediately known in Europe, those who sent orders from there required hops of Massachusetts inspection, and they in consequence commanded a cent or two on a pound more than those of any other state. It is for the interest both of the grower and the dealer that the truth should be stamped on every bale.

The profit of raising hops must, of course, depend largely upon the foreign demand, and as that is extremely fluctuating, the price of this crop is fluctuating and uncertain. The consequence has been a decline in the cultivation, in some sections of the country, while in others it has largely increased. As an instance of the fluctuation of prices and the foreign demand, it may be stated that the exportation in 1849–50 amounted to 1,275,455 pounds, valued at $142,692; while the very next year, 1850–51, it fell off to 110,360 pounds, valued at $11,636, only.

It may be stated, however, that notwithstanding the great fluctuations, the crop increased from 1,238,502 pounds in 1840, to 3,497,029 pounds in 1850; showing a gain of 2,258,527 pounds.

The geographical distribution of this crop, as returned by the last census, was as follows:—

The south raised 33,780 pounds, valued at $5,067.

The west raised 194,961 pounds, valued at $29,244.

The north raised 3,268,215 pounds, valued at $490,232. New England raised 707,743 pounds, and New York 2,536,299. Balance raised in other states, 252,987 pounds. The crop of 1855 was estimated by the secretary of the treasury as nearly five millions of pounds.

CULTURE OF FLAX AND HEMP.

Like most of the crops already mentioned, both flax and hemp were introduced into the colonies very soon after the settlement of the country. Flax was taken to Holland from the Dutch settlement of Manhattan Island, or New York, as early as 1626. The governor and company of the Massachusetts Bay, in New England, also ordered both flax and hemp seed in 1628, if not, indeed, as was probably the case, at an earlier date. Hemp was very soon abandoned, as the land was not found strong enough for it.

Hemp and flax were raised in Virginia prior to the year 1648, as we read of its being woven and spun there; and bounties were offered for the culture of hemp in 1651, and of flax in 1657; but the culture fell off as soon as the bounties were discontinued.

But flax was pretty generally cultivated in small quantities for home consumption, in most parts of the country. It was not only raised, but manufactured at home, and formed a most important article in the domestic economy of the days of homespun. In 1745, some Irish emigrants arrived in Massachusetts, and established an improved mode of manufacturing linen and other "spinning-work," and they met with some success. Manufactories were established in Salem, Mass., for making sail-cloth, as early as 1790.

In 1751 no less than 14,000 pounds of hemp were exported from New Jersey, and the next year, 1752, the amount of flax-seed exported from Philadelphia was 70,000 bushels. This amount rose, in 1767, to 84,658 bushels; and in 1771 to 110,412 bushels. New York exported 12,528 hogsheads of this seed in the year 1755. The total amount exported from the American colonies in 1770 was 312,612 bushels.

In 1791 the United States exported 292,460 bushels of flax-seed; in 1800 the export was 289,684 bushels, and 240,579 bushels in 1810. The culture of these crops grew up more rapidly at the west, and extensive factories were established for the manufacture of cordage, bagging, etc., in Louisville, Lexington, Frankfort, and other places in Kentucky, as early as 1810. Hemp, in fact, has become a staple crop in the west.

According to the census of 1840, about 97,251 tons of flax and hemp were raised. In 1850 the two products were returned separately as 34,871 tons of hemp, 7,709,676 pounds of flax, and 562,312 bushels of flax-seed. The decrease in the aggregate growth of fibre was thus shown to be about 56,000 tons. The total value of both crops does not vary much from five millions of dollars.

Of the crop returned in 1850, the distribution was as follows:—

The south raised 34,673 tons of hemp, worth about $3,833,376; and 4,768,198 pounds of flax, worth $476,619.

The west raised 150 tons of hemp, and 1,330,859 pounds of flax; worth $133,085.

The north raised 443,370 tons of hemp, worth $22,178; and 1,717,419 pounds of flax, worth $171,742.

THE CULTURE OF SILK.

The cultivation and manufacture of silk has never been extensively carried on in this country, though introduced at a very early date—as early, in fact, as the first settlement of Virginia. James I. showed a desire to favor this branch of industry, equalled only by his antipathy to the growth of tobacco. It did not succeed at first, however, and in 1651 another spasmodic effort was made to revive it, but it was to little effect, and it never prospered there.

Silk culture was commenced in Louisiana by the Company of the West, in 1718. It was introduced into Georgia in 1732. A special act of Parliament was required to keep up the interest in it, in 1749, exempting the producer from paying duties, etc.

Connecticut began the raising of silk in 1760, and in 1783 the legislature of that state passed an act, granting a bounty on mulberry trees and the production of silk.

About the year 1830 an excitement was got up by interested speculators, which was so adroitly managed that it became general over the country, till it died under the name of the "Morus Multicaulis" fever, in 1845. Even under the encouragement of the government, all the raw silk Georgia could export in 1750 was 118 pounds; in 1765 it was only 138 pounds; in 1770, 290 pounds. The census of 1840 returned the amount of silk cocoons at 61,552 pounds; and this quantity had fallen off in 1850 to 10,843 pounds; being a decrease of 46,789 pounds in ten years.

BEE CULTURE.

The production of honey and the management of bees receives comparatively little attention in this country. So little, indeed, as hardly to be worthy of mention among the products of our national agriculture; and yet they form an important item in the domestic economy of many a household, and ought to receive all the attention they deserve.

The amount of beeswax and honey returned by the census of 1850 was 14,853,790 pounds. It is hoped that greater results will appear from this delightful occupation than it is possible at the present time to record.

The distribution of the production of honey and wax, as returned by the last census, was as follows:—

The southern states, including also Kentucky and Missouri, produced 7,964,760 pounds, which were valued at $1,194,714.

The western states produced 3,401,078 pounds, valued at $510,140.

The northern states produced 3,487,290 pounds, valued at $523,093.

POULTRY AND EGGS.

The value of the poultry kept in the United States, and the production of eggs, constitutes a much larger item of our agricultural economy than is generally supposed. The value of poultry, according to the census of 1840, was no less than $12,176,170. This sum, great as it appears, has been increased to some twenty-five millions of dollars. The city of New York alone pays about two millions of dollars a year for eggs. And so the other large cities require a supply in proportion.

The keeping of poultry, therefore, is by no means an insignificant item in the products of our agriculture, though for some reason or other the last census failed to take cognizance of it.

It may be doubted whether the introduc-

tion of foreign varieties of fowls effected an improvement in the common stock of the country. The excitement produced by designing men may have had the effect to increase the interest and knowledge in this branch of husbandry, which, so far, may be set down as a positive benefit to the country, but further than that, it is difficult to say what benefit resulted from it. For a time, indeed, the number of fowls was very largely increased, but the product of eggs did not increase in proportion.

The keeping of poultry, like that of bees, may be set down as among the means of making the farm attractive, in addition to the actual profit which may be derived from keeping a limited number of choice fowls, and the production of eggs for family use.

THE LUMBER BUSINESS.

The growth and preparation of lumber does not, perhaps, come strictly within the range of what is understood by agricultural products. But the primary operations involved are to a large extent undertaken by farmers, as a part of winter's work, and lumber forms no unimportant item in the clearing up and the preparation of land for tillage. It is, therefore, proper enough to allude to it in connection with the progress of our agriculture.

Volney represented the surface of this country as one vast forest, diversified, occasionally, by cultivated intervals. Since his time the woodman's axe, guided by a ruthless hand, has reversed the picture to some extent, but still the number and variety of our forest trees abundantly testify the bounty of nature.

Originally, indeed, an almost unbroken forest covered a large proportion, not only of this country, but of the whole continent. The Indian tribes were far less populous than is generally supposed; and if we except the prairie lands of the valley of the Mississippi, but a small portion of the surface of our present territory was destitute of timber trees.

"Then all this youthful paradise around,
And all the broad and boundless mainland, lay
Cooled by the interminable wood, that frowned
O'er mount and vale, where never summer ray
Glanced till the strong tornado broke its way
Through the gray giants of the sylvan wild;
Yet many a sheltered glade, with blossoms gay,
Beneath the showering sky and sunshine mild,
Within the shaggy arms of that dark forest smiled."

It was stated by Michaux that there were in the United States one hundred and forty species of forest trees which attain a greater height than thirty feet, while in France there were only eighteen of the same description. An English traveller, writing of this country, says: "I was never tired of the forest scenery of America, although I passed through it from day to day. The endless diversity of foliage always prevents it from being monotonous." But the surpassing beauty which the forests add to our natural scenery is not to be compared with the solid advantages which are derived from the immense variety, as well as the quantity of their timber.

The forest scenery of this country beyond the Alleghany mountains, and from them to the Mississippi river, has been invaded to a less extent than in the older settled portions, and there are still vast tracts remaining uncleared. Trees of gigantic height and dimensions, standing in the richest mould, which has been accumulating for ages, and surrounded with a luxuriance of vegetation very rarely seen in the eastern states, carry the mind back to a period long anterior to the discovery of the country, and fill the beholder with awe by their grandeur.

To these forests, as they once stood, over a large portion of the country, we have been indebted for much of our growth and prosperity as a nation! How much do we not owe to one species of these majestic trees—the white pine? Michaux observed that throughout the northern states, except in the large capitals, seven-tenths of the houses are of wood, of which seven-tenths, three-quarters are of white pine. He might have said nine-tenths were built of wood, and come within the truth, though at the time he visited this country, fifty years ago, many houses had been constructed, to a great extent, of hard wood.

The new settlers had to enter and fell the forests, and burn and clear their lands as a preliminary preparation, and thousands of acres were thus brought under culture, the timber being of too little value to pay for saving. It was in vain that statutes were passed a hundred years ago and more, to prevent the cutting of trees suitable for ship timber. Private rights could not be invaded in the colonies, and down the forests came. The value of the forests for timber during the time of limited and scattered population

was but little, and it could not be transported to great distances.

The lumber business, therefore, did not grow up to any great magnitude and importance till a comparatively recent period in any part of the country. Not, in fact, till the great centres of population began to feel new life from our growing commerce, creating a more extensive demand for building purposes, and for ship-building. When this period arrived, after the war of 1812 and the conclusion of peace, the lumber business began to extend itself into Maine and other regions then comparatively unsettled, especially in the vicinity of large streams giving easy access to the sea-board or to lake navigation. The mode of proceeding will be more clearly understood from the following description of the details of operations, prepared by a gentleman residing in the lumber regions of Maine. The logging camp is very much the same in all the more northern sections of the United States, from the timber regions of the St. Johns to the pineries of Wisconsin, and a detail of the winter operations of one will apply, with slight modification, to them all. I may remark, in passing, that I have myself lived some winters in the immediate vicinity of extensive logging operations in Maine, and, in fact, been engaged in them to some extent, and am familiar with them.

When a lumberer has concluded to log on a particular tract, the first step is to go with a part of his hands and select suitable situations for building his camps. In making this selection, his object is to be near as possible to the best clumps of timber he intends to haul, and to the streams into which he intends to haul it. He then proceeds to build his camps and to cut out and clear out his principal roads The camps are built of logs, being a kind of log-houses. They are made about three feet high on one side, and eight or nine on the other, with a roof slanting one way. The roof is made of shingles split out of green wood and laid upon rafters. The door is made of such boards as can be manufactured out of a log with an axe. Against the tallest side of the camp is built the chimney—the back being formed by the wall of the camp, and the sides made of green logs, piled up for jams, about eight feet apart. The chimney seldom rises above the roof of the camp; though some who are nice in their architectural notions sometimes carry it up two or three feet higher. It is obvious from the construction that nothing but the greenness of the timber prevents the camp from being burned up immediately; yet the great fires that are kept up make but little impression in the course of the winter upon the back or sides of the chimney. A case, however, happened within a year or two, where a camp took fire in the night and was consumed, and the lumberers in it burned to death. Probably the shingle roof had become dry, in which case a spark would kindle it, and the flames would spread over it in a moment. Parallel to the lower side of the building, and about six feet from it, a stick of timber runs on the ground across the camp. The space between this and the lower wall is appropriated to the bedding, the stick of timber serving to confine it in its place. The bedding consists of a layer of hemlock boughs spread upon the ground, and covered with such old quilts and blankets as the tenants can bring away from their homes. The men camp down together, with their heads to the wall and their feet toward the fire. Before going to bed they replenish their fire—some two or more of them being employed in putting on such logs as with their handspikes they can manage to pile into the chimney. As the walls of the building are not very tight, the cool air plays freely around the head of the sleeper, making a difference of temperature between the head and the feet not altogether agreeable to one unused to sleep in camps. A rough bench and table complete the furniture of the establishment. A camp very similar, though not so large in dimensions, is built near for the oxen; on the top of this the hay is piled up, giving warmth while it is convenient for feeding.

A large logging concern will require a number of camps, which will be distributed over the tracts, so as best to accommodate the timber. One camp serves generally for one or two teams. A team, in ordinary logging parlance, expresses, not only the set of four or six oxen that draw the logs, but likewise a gang of men employed to tend them. It takes from three or four to seven or eight men to keep one team employed—one man being employed in driving the cattle, and the others in cutting down the trees, shaping them into logs, barking them, and cutting and clearing the way to each tree. The number of hands required is inversely

to the distance the logs are to be hauled; that is, most hands are required when the distance is shortest, because the oxen, returning more frequently, require their loads to be prepared more expeditiously. Having built their camps, or while building them, the main roads are to be cut out. These run from the camps to the landing places, or some stream of sufficient size to float down the logs on the spring freshet. Other roads are cut to other clumps of timber. They are made by cutting and clearing away the underbrush, and such trees and old logs as may be in the way, to a sufficient width for the team of oxen, with the bob-sled and timber on it, to pass conveniently. The bob-sled is made to carry one end of the timber only, the other drags upon the ground, and the bark is chipped off, that the log may slip along more easily. The teams proceed to the woods, when the first snows come, with the hands who are not already there, and the supplies. The supplies consist principally of pork and flour for the men, and Indian meal for the oxen; some beans, tea, and molasses are added. Formerly hogsheads of rum were considered indispensable, and I have before me a bill of supplies for a logging concern of three teams in 1827–28, in which I find one hundred and eighty gallons of rum charged; but of late very few respectable lumberers take any spirits with them, and the logging business is consequently carried on with much more method, economy, and profit. The pork and flour must be of the first quality. Lumberers are seldom content to take any of an inferior sort; and even now, when flour is twelve dollars a barrel, they are not to be satisfied with the coarser breadstuffs. Hay is procured as near to the camps as possible; but as most of the timber lands are remote from settlements, it is generally necessary to haul it a considerable distance; and as it must be purchased of the nearest settlers, they are enabled to obtain very high prices. From twelve to twenty dollars per ton is usually paid. When the expense of hauling it to the camp is added, the whole cost is frequently as high as thirty dollars a ton, and sometimes much higher. Owners of timber lands at a distance from settlements may make a great saving by clearing up a piece of their land, and raising their own hay. Some one of the hands, who has not so much efficiency in getting timber as skill in kneading bread and frying pork, is appointed to the office of cook. Salt pork and flour bread constitute the regular routine of the meals, varied sometimes with salt fish or salt beef. Potatoes are used when they can be obtained. Now and then, perhaps, when the snow is deep, they catch a deer, and live on venison. The men are employed through the day in cutting the timber and driving the teams. In the evening some take care of the oxen; some cut wood for the fire; then they amuse themselves with stories and singing, or in other ways, until they feel inclined to turn in upon the universal bed. On Sundays the employer claims no control over their time, beyond the taking care of the cattle, the fire, and the cooking. On this day they do their washing and mending; some employ themselves, besides, in seeking timber, and some in hunting partridges, while some remain in the camp and read the Bible. They remain in the woods from the commencement of sledding, some time in December, until some time in March, in the course of which month their labors are usually brought to a close by the snow, it becoming too shallow or too deep. If there are heavy thaws the snow runs off, not leaving enough to make good hauling. If, on the other hand, it gets to be four or five feet deep, the oxen cannot break through it to make the path which it is necessary to form in order to get at each individual tree. The men and teams then leave the woods. Sometimes one or two remain to be at hand when the streams open. I know one who last winter staid by himself in the woods, fifteen or twenty miles from the nearest habitation, for the space of twenty-eight days, during which time he earned $203 by getting in timber with his axe alone, being allowed for it at the same rate per thousand that the lumberers were in getting it in with their teams. He found some berths in the banks of the stream, where all that was necessary was to fell the tree so that it should fall directly upon the water, and there cut it into logs to be ready for running. When the streams are opened, and there is sufficient freshet to float the timber, another gang, called "river drivers," takes charge of it. It is their business to start it from the banks, and follow it down the river, clearing off what lodges against rocks, pursuing and bringing back the sticks that run wild among the bushes and trees that cover the low lands adjoining the river, and breaking up jams that form in narrow or shallow places.

A *jam* is caused by obstacles in the river catching some of the sticks, which in their turn catch others coming down; and so the mass increases until a solid dam is formed, which entirely stops up the river, and prevents the further passage of any logs. These jams are most frequently formed at the top of some fall; and it is often a service that requires much skill and boldness, and is attended with much danger, to break them up. The persons who undertake it must go on the mass of logs, work some out with their pick poles, cut some to pieces, attach ropes to others to be hauled out by the hands on shore, and they must be on the alert to watch the moment of the starting of the timber, and exercise all their activity to get clear of it before they are carried off in its tumultuous rush. Some weeks, more or less, according to the distance, spent in this way, bring the timber to the neighborhood of the saw-mills. A short distance from Oldtown, on the Penobscot, there is a boom established, extending across the river, for the purpose of stopping all the logs that come down. It is made by a floating chain of logs, connected by iron links, and supported at suitable distances by solid piers, built in the river; without this it would be impossible to stop a large part of the logs, and they would be carried on the freshet down the river, and out to sea. The boom is owned by an individual, who derives a large profit from the boomage, which is thirty-five cents per thousand on all logs coming into it. The boom cost the present owner about $40,000. He has offered it for sale for $45,000. It is said the net income from it some years is $15,000. Here all the logs that come down the Penobscot are collected in one immense mass, covering many acres, where is intermingled the property of all the owners of timber lands in all the broad region that is watered by the Penobscot and its branches, from the east line of Canada, above Moosehead Lake, on the one side, to the west line of New Brunswick on the other. Here the timber remains till the logs can be sorted out for each owner, rafted together, and floated to the mills or other places below.

Rafting is the connecting the logs together by cordage, which is secured by pins driven into each log, forming them into bands, like the ranks of a regiment. This operation is performed by the owner of the boom. The ownership of the timber is ascertained by the marks which have been chopped into each log before it left the woods, each owner having a mark, or combination of marks, of his own. When the boom is full, only the logs lowest down can be got at; and the proprietors of other logs must wait weeks, sometimes months, before they can get them out, to their great inconvenience and damage. After the logs are rafted and out of the boom, a great part of them are lodged for convenience in a place called Pen Cove, which is a large and secure basin in the river, about two miles below the boom. From this cove they can be taken out as they are wanted for the mills below. While in the boom and at other places on the river, they are liable to great loss from plunderers. The owners or drivers of logs will frequently smuggle all that come in their way, without regard to marks. The owners or conductors of some of the mills on the river are said to be not above encouraging and practising this species of piracy. Indeed, timber in all its stages seems to be a fair object for plunderers, from the petty pilferer who steals into the woods, fells a tree, cuts it into shingles, and carries it out on his back, to the comparatively rich owner of thousands of dollars.

When the logs have been sawn at the mills, there is another rafting of the boards, which are floated down the river to Bangor, to be embarked on board the coasters for Boston. In this process they are subject to much injury: first, by the mode of catching them as they come from the mill sluices, the rafters making use of a picaroon, or pole, with a spike in the end of it, which is repeatedly and unmercifully driven into the boards, taking out, perhaps, a piece at each time; secondly, by the holes made by the pins driven into the boards in rafting; and, thirdly, by the rocks, and rapids, and shallows in the river, breaking the rafts to pieces and splitting up the boards as they descend. These inconveniences will be partly remedied by the railroad now in operation, unless other inconveniences in the use of it should be found to overbalance them. The kinds of timber brought down our rivers are pine, spruce, hemlock, ash, birch, maple, cedar, and hackmatack. Far the greater part of it is pine. The lumberers make about six kinds of pine, though they do not agree exactly in the classification, or in the use of some of the names. The most common division is into pumpkin-pine, timber-

pine, sapling, bull-sapling, Norway, and yellow, or pitch-pine. The pumpkin-pine stands pre-eminent in the estimation of the lumberers, because it is the largest tree, and makes fine, large, clear boards. They are soft, and of a yellowish cast. The timber-pine and saplings are the most common. The former is generally preferred, as being larger and more likely to be sound; yet the saplings are said to make the harder and more durable boards. The common sapling grows in low lands, generally very thick, but much of it is apt to be rotten. The bull-sapling is larger and sounder, grows on high land, and is mixed with hard wood. The Norway pine is a much harder kind of timber than the others. It is seldom sawn into boards, though it makes excellent floor-boards; but it is generally hewn into square timber.

I will conclude with some remarks upon the different modes of operating made use of by owners of timber. There are three. One is for the owner to hire his men by the month, procure teams, and furnish them with equipments and supplies. A second is to agree with some one or more individuals to cut and haul the timber, or cut, haul, and run it, at a certain price per thousand feet. The third way is to sell the *stumpage* outright! that is, to sell the timber standing. The first mode is seldom adopted, unless the owner of the timber is likewise a lumberer, and intends to superintend the business himself. The second mode is very common. It is considered the most saving to the owners, because the lumberer has no inducement to select the best timber, and leave all that is not of the first quality; to cut down trees and take, and leave others to rot that are not quite so good, but may be worth hauling. Its inconveniences are, that, as the object of the lumberer is to get as large a quantity as possible, he will take trees that are not worth so much as the cost of getting them to market, and which, besides being of little value themselves, render the whole lot less saleable by the bad appearance they give it. The owner, too, is subject to all the losses that may happen in running the logs down the river. Very frequently he is obliged to make a contract to have the timber cut and hauled to the landing-places, and another to have it run down; for the river-drivers are a distinct class from the lumberers. Most of them, indeed, are lumberers; yet it is but a small part of the lumberers that are river-drivers. A great part of the lumberers are farmers, who must be on their farms at the season of driving, and, therefore, cannot undertake any thing but the cutting and hauling. They are paid for the number of thousand feet they deposit at the landing-places; and the logs being surveyed, or scaled, as they are hauled, their object is to get as many thousand feet as possible on the landing-places; while the river-drivers may be very careless about getting them all down, and the owner may never receive the whole quantity he has paid for cutting and hauling. In operating in this mode, the owner usually furnishes the supplies, provisions, etc., and the lumberer procures the teams and hires the men. The owner, commonly, does not bind himself to pay before the logs go to market, and he frequently makes a contract for his supplies on the same condition, in which case he has to pay from twenty-five to thirty-three per cent. more for his goods than he would dealing on cash or common credit. Sometimes, when there is no freshet, the logs do not go down until the second year; and then the trader and lumberer both suffer for want of their pay.

The third mode is by far the simplest and easiest for the owner. He avoids all trouble of furnishing supplies, of watching the timber on the river, and of looking out for a market. But he must have a man of some capital to deal with, as he furnishes his own teams and supplies, and pays the men, receiving very heavy advances. The purchaser of it has no interest to cut the timber savingly, and he sometimes makes dreadful havoc among the trees, leaving a great deal of valuable stuff on the ground to rot. And if he selects only the best trees in a berth, much of the timber left standing may be lost, because no one will afterward want to go into that berth from which all the best trees have been culled. It is common now to employ a man to pass the winter in the camps, living alternately at one or another, for the purpose of scaling the logs, keeping a correct account of them, and seeing that the timber is cut according to the contract.

But, after all, there is almost always found to be a considerable difference between timber cut by the thousand and that which is cut on stumpage. Each mode has its troubles; but I think that owners at a distance will manage their concerns with least vexa-

tion by selling the stumpage, provided that they have honest men to deal with.

It might be mentioned in connection with the above interesting statement, that the primary object in the settlement of Maine was to engage in the lumber business. Agriculture was originally secondary to that business, and grew up of necessity, in connection with it. The same may be said of some parts of New Hampshire. Mason and Gorges procured their grant, embracing a large tract above Portsmouth, Dover, etc., for the purposes of lumbering and the manufacture of potash. It was common in Maine for a lumberman to work at farming in summer, and cut and haul lumber in the winter.

A brief description of lumbering at Green Bay, in the northern part of Wisconsin, will be interesting in this connection.

"A *logging camp* in the winter," says a resident of Green Bay, "is an exhilarating scene. The great trees falling here and there, with a thundering sound; the fine, strong teams moving off to the river with their loads, and hurrying back with empty sleds; the songs and shouts of the jolly, red-shirted lumbermen; the majestic forest scenery, standing out so handsomely in the clear air of northern winter, make up a panorama that is worth going a day's journey to see. Finally, the snow fades out before the spring sun. It goes first from the logging road, because there it has been most worn; and then the lumbermen make ready for the 'running,' and wait impatiently for the breaking up of the stream and the coming of the freshet. If they are a long way up the stream, this is a matter of great anxiety, for, perhaps, the rise will not be sufficient, and their logs will lie over till another year. One firm on the Oconto got logs as high up as ninety miles from the mouth. If the water is high, the logs come down by thousands upon thousands, rushing, clogging up, breaking away again, piling upon each other, and requiring the constant efforts of the drivers to keep them on the go. Sometimes, when an obstruction occurs, a few logs form a 'jam,' and those coming after them, with terrific force, are piled up in rude masses, till one not familiar with it would think the whole enterprise hopelessly ended, for there seems no possibility of ever extricating the mass, perhaps, of a thousand logs. But a single man, with an iron-shod handspike, goes upon the jam carefully, looking with a practised eye here and there, until he discovers one log which is the key to the whole problem. Prying cautiously, he loosens it, and then makes his way as quick as possible to the shore again. The confused mass begins to settle, the head logs start; and then, all at once, down stream they go once more, with the old speed, like a herd of countless buffaloes stamping along the prairie. The logs reach the mill in April or May, and the sawing commences on the arrival of the 'head of the drive.'"

In the absence of accurate statistics, which ought to have been furnished by the last census, it is not possible to give a detailed statement of the full extent of the lumber business of the country; and hence, any information on the subject must necessarily come far short of giving an adequate idea of its vastness, and of the progress which the last few years have witnessed in its development. But we know that the export of lumber from the United States has risen from $1,822,077 in 1821 to five millions in 1853; we know that, during the four years from 1850 to 1853 inclusive, the value of lumber exported was nearly twenty millions of dollars; we know that the amount of lumber received at Chicago alone in one year (1857) was no less than 459,639,198 feet, besides upward of eighty millions of laths. Chicago, indeed, as a lumber market, stands pre-eminent, and its rise and progress as such is little less remarkable than its growth as a grain market. The banks of the rivers are loaded for several miles with vast piles of lumber, shipped to that city from the extensive pine forests of Michigan, Wisconsin, and Canada; while the capital invested in this trade is immense. The vessels alone which are engaged in carrying the lumber which finds its market there, did not cost less than a million and a half; and the number of hands employed in one way and another is not less than ten thousand.

Here are some of the receipts of lumber in that city:—

	Lumber.—Feet.	Shingles.	Lath.
1847,	32,118,225	12,148,500	5,655,700
1848,	60,009,250	20,000,000	10,250,109
1849,	73,259,553	39,057,750	19,281,733
1850,	100,364,779	55,423,750	19,809,700
1851,	125,656,437	60,338,250	27,583,475
1852,	147,816,232	77,080,500	19,759,670
1853,	202,101,098	93,483,784	39,133,116
1854,	228,336,783	98,061,250	32,431,550
1855,	306,553,467	158,770,860	46,487,550
1856,	456,673,169	135,876,000	79,235,120
1857,	459,639,198	131,832,250	80,130,000

This, it must be borne in mind, is the business, in this particular trade, of only one city. Many other cities and large towns might be named, which, for extent of operations, would compare favorably with it.

The city of Boston receives from the southern states lumber to the value of a million of dollars a year, to say nothing of the immense quantities which she receives, also, from the north and east, and from Nova Scotia.

In what has been said above, reference has been had exclusively to the procuring of lumber for the purposes of building. The vast amount required for fuel has not been considered, but if that could be taken into account it would form an item of amazing importance, not only as ministering to the comfort of millions of people, but in a commercial and business point of view. There was a time, and that quite recently, when serious apprehensions were felt on account of the rapid disappearance of the woodlands of New England and the older northern states, lest they should, at no distant day, fail altogether to furnish a sufficient supply. The multiplication of railroads, and their great consumption of wood, had raised the prices to such an extent that the farmer could not wait for his young woodlands to grow, and thousands of acres were every year cut off to meet this demand. The introduction of coal into general use in the cities and large towns, and the resort to that by many of the leading lines of railway, has now relieved us from any cause for alarm, and the forests, even of Massachusetts, are now, it is believed, on the increase.

To this is to be added an increasing taste for the cultivation of forest trees, which in time will make a very perceptible improvement in the natural scenery of the country.

PROGRESS OF AGRICULTURAL LITERATURE.

The improvement and increase of the agricultural literature of the country might very properly have been treated of in the early part of this chapter, as among the means or the causes of the progress which has been made in the development of our agricultural wealth, to which it has contributed nearly as much, perhaps, as the agricultural societies themselves. I have, however, preferred to reserve it for this position, for the reason that it may with equal propriety be said to have grown out of a demand for information incident to the general spirit of inquiry which the association of effort produced in the public mind, and especially since it has, for the most part, grown up within the last twenty years, or long subsequent to the formation of many of the agricultural societies.

If we except the "Essays on Field Husbandry," by the Rev. Jared Eliot, of Connecticut, prepared as early as the middle of the last century, and the valuable papers submitted to the Massachusetts, the New York, and the Pennsylvania Agricultural Societies, and published by them about the beginning of the present century, we cannot be said to have had any agricultural literature, till within the memory of many men still living. None, in fact, till within the last twenty or thirty years. The "Essays on Field Husbandry," considering the time when they were written, were certainly a remarkable contribution to the agricultural literature of the country, filled with the most judicious advice, and worthy of republication, both as a part of the history of our agriculture and for their own intrinsic merits. But, as already remarked on a former page, the book was far in advance of the farming community of that time, and it is not probable that it had many readers. The papers published by the Massachusetts Society for Promoting Agriculture, commenced as early as 1796, were among the most valuable that have ever appeared in this country. They are embraced in a series of ten octavo volumes, called the "Agricultural Repository," and extend over a period of thirty years, discussing many questions which agricultural chemistry and other kindred sciences have since definitively settled and explained, but containing much useful information on a great variety of subjects connected with practical agriculture. The agricultural library connected with my office is one of the most valuable and extensive in the country, but I regard the "Agricultural Repository" as among the most valuable series in it.

The farming community gradually "took to reading." The *American Farmer* was commenced in Baltimore, Maryland, in 1819, and is believed to have been the first strictly agricultural periodical started in the country. It was sold in 1829 for twenty thousand dollars, which, at that time, was a very large price for an agricultural paper. It has been regularly published up to this time,

and is still in a flourishing condition, with a good circulation.

The *Agricultural Intelligencer* was established in Boston in 1820, but for some reason or other, probably for want of sufficient support, was discontinued, and the *New England Farmer* was begun in 1822 by Thomas G. Fessenden. This journal, an eight page quarto, was continued with a varying fortune till 1846, when it died, but another of the same name, an octavo monthly and folio weekly, sprang up, and is still in the full tide of success. The *New York Farmer* was established soon after the *New England Farmer*, and was continued for several years by Mr. Samuel Fleet, then sold to Mr. D. K. Miner, who engaged the services of Mr. Henry Colman as editor, till the journal died, and is no more. In 1831, Mr. Luther Tucker, one of the oldest agricultural editors of the country, established the *Genesee Farmer*, at Rochester, N. Y. At the end of the first year it had but six hundred subscribers. But Mr. Tucker persevered, until, in 1839, the subscription reached 19,000.

In the meantime, Judge Buel had established the *Cultivator*, at Albany, in 1833, and at his death, in 1839, Mr. Tucker purchased that journal of his heirs, and removed to Albany, uniting the *Genesee Farmer* and the *Cultivator* which is still in a very flourishing condition, having exerted a long-continued and wide-spread influence. The place made vacant by the removal of the *Genesee Farmer* from Rochester was soon filled by the *New Genesee Farmer*, soon after which the first word of the title was dropped, and as the *Genesee Farmer* it is still published, and has a wide circulation. The *American Agriculturist*, established about the year 1842, was continued with some success for some years, till its subscription list became reduced to a few hundreds, when it passed into new hands, felt the infusion of younger blood, and in less than five years the subscription has risen to upward of fifty thousand. The *Farmers' Cabinet* was published some years in New York city, under the editorship of J. S. Skinner, who first established the *American Farmer*, at Baltimore. Mr. Skinner, in 1848, started the *Plough, Loom, and Anvil*, which was continued till quite recently. The *Maine Farmer* was established about the year 1832, and has exerted a good influence.

Many other agricultural journals have been started within the last five or ten years, and have received a generous patronage from the farming community, among which ought to be mentioned the *Rural New Yorker*, with a very wide circulation; the *Country Gentleman*, published in connection with the *Cultivator*, at Albany; the *Ohio Farmer*, of very wide influence and large circulation; the *Michigan Farmer*, at Detroit; the *Valley Farmer*, at St. Louis; the *Wisconsin Farmer*, at Madison; the *North-Western Farmer*, at Dubuque; the *Southern Planter*, at Richmond; the *California Farmer*, at Sacramento; the *Homestead*, at Hartford, Connecticut—all exceedingly valuable and well conducted papers; the *Working Farmer*, in New York city, and many others with which I am less familiar. There are in the northern and western states more than twenty-five journals, most of which are weekly, devoted almost exclusively to agriculture and horticulture, and the aggregate circulation of these is not less than 250,000 copies. There are also in the southern states, some six or eight similar publications devoted to agriculture, whose aggregate circulation is not less than thirty-five thousand copies. These facts are exceedingly important with reference to the present condition of our agriculture, since they indicate a wide-spread spirit of inquiry and intelligence among farmers, which must necessarily have an important influence on the future development of this great interest.

Besides the large number and wide circulation of the journals devoted to agriculture, there is a good demand for agricultural books, and many of the standard works published in Europe have been republished in this country, including Stephens' "Book of the Farm," Thaer's "Principles of Agriculture," Johnston's "Agricultural Chemistry," and many other European works of established reputation. These foreign works were soon followed by American treatises on landscape gardening, fruits, animals, draining, dairy farming, and, in fact, on subjects covering the whole ground of farm economy, more or less perfectly. Many of these treatises and republications have had a wide circulation. The "Modern Horse Doctor" has sold to the extent of more than twenty thousand copies, "Youatt and Martin on Cattle" over ten thousand, "Youatt on the Horse" over twenty-five thousand, and many others in a similar proportion.

In addition to these facilities for information, many of the states have established township and district libraries, by means of which the choicest works on all subjects are brought within the reach of all, the poor as well as the rich. In these libraries are generally included a fair proportion of agricultural works.

This system was initiated by New York in 1837, by making an appropriation of two hundred thousand dollars a year for three years, and subsequent annual grants of over fifty thousand dollars. Massachusetts followed the example of New York in 1839, and more recently Michigan passed a law giving each township the sum of fifty dollars annually for this purpose. Indiana adopted the same policy in 1854, and Ohio in 1857, the former appropriating $300,000 for two years, and the latter $80,000 annually. Illinois and other western states have also adopted a similar course.

These measures are properly regarded as well calculated to diffuse information, and promote not only agricultural improvement, but the general welfare of the community. To this should be added the fact that most states publish annually an abstract of the proceedings of the county agricultural societies for general gratuitous distribution. Many of the states produce volumes of great value. Ohio distributes from twenty to thirty thousand copies. Massachusetts publishes ten thousand copies, and Maine as many more. These various instrumentalities are now in constant activity, and are exerting an immense influence.

Allusion should also be made to the establishment, in some of the states, of agricultural colleges, where special attention is to be given to the various sciences which bear directly or indirectly upon practical agriculture. Michigan was the first to lead off in this direction; a liberal endowment was granted by the state. New York, Maryland, and other states soon followed; but the results of these institutions are not yet attained, nor can they at present be fully appreciated, since time only can prove their value and their efficiency.

This brief survey of the growth of the facilities for information upon agricultural subjects and the appliances brought to bear upon the instruction of the young farmer, will sufficiently indicate the rapidity of the progress which has been made in this particular direction within the last ten or twenty years, and justify the hope and expectation of the most splendid results in the future.

It ought not to be overlooked, in this connection, that there has been a most decided progress within the last twenty years in agricultural chemistry and kindred sciences. This progress has been made not wholly and strictly by scientific men in our own country, but scientific discoveries in agriculture are the property of the intelligent farmer everywhere, and those made abroad have had a material and important influence in promoting the advancement of practical agriculture among us.

The labors of Arthur Young and Sir Humphry Davy were exceedingly valuable, but they bear the same relation to more recent investigations that the labors of the pioneer in the western forest do to those of the sons who till the soil and reap the harvests for which the father had prepared the way. The former did more than any other man to stir up the agricultural mind of his country. The latter was the first to give principles to practice, and he announced the new philosophy in these words: "Vegetables derive their component principles—which are, for the most part, hydrogen, carbon, oxygen, and nitrogen—either from the atmosphere by which they are surrounded, or from the soil in which they grow. The process of vegetation appears to depend upon the perpetual assimilation of various substances to the organs of the plant, in consequence of the exertion of their living, and of their chemical affinities."

The conversion of inorganic bodies into gases, and the assimilation of gases by organic structures, formed the basis for a new starting point, and had never before been announced. Carbonic acid had been discovered by Black in 1752. Dr. Rutherford called attention to nitrogen in 1772, and Priestley discovered oxygen in 1774, and obtained it from the leaves of plants; and when Davy appeared with a series of investigations more intimately connected with agriculture, the properties of air and water had not long been known. But little progress had been made in vegetable anatomy. Most of all that is known with regard to the organs of plants—their mode of growth by food taken from the air, from water, from manure, and from the soil by transmuting processes of wonderful delicacy—has been discovered within the last fifty years. Since

Davy's time, the processes of chemical analysis have been vastly improved, and abstract chemistry itself has grown up to a science of inestimable importance, which it had not in his day. The accumulation of scientific facts is the work of time, and it was not till 1840 that Liebig prepared his report on the progress of agriculture for the British Association for the Advancement of Science, and opened a new world of thought and study, awakened the attention of practical farmers to the importance of applying the results of chemical investigations, and, in some respects, essentially modified the practice of all civilized countries.

Liebig said, in his "Organic Chemistry," that "to manure an acre of land with forty pounds of bone dust, is sufficient to supply three crops of wheat, clover, potatoes, turnips, etc., with phosphates, but the form in which they are restored to the soil does not appear to be a matter of indifference. For the more finely the bones are reduced to powder, and the more intimately they are mixed with the soil, the more easily they are assimilated. The most easy and practical mode of effecting their division is to pour over the bones, in the state of fine powder, half of their weight of sulphuric acid, diluted with three or four parts of water." The leading idea in this and other propositions of Liebig opened the way for the whole system of artificial manuring, which has extended so far in modern times. Previous to that time, the farmer had confined himself to the use either of a compost of animal and vegetable materials, or of other simple substitutes, as ashes, salt, soot, or something of the kind; but not in accordance with any fixed principles derived from reasoning or the results of observation, but simply because experience had shown them to be beneficial. Liebig's idea was that sulphuric acid, the vitriol of commerce, would make the neutral phosphate of lime soluble, and give it a powerful action in the soil. For the subsequent discovery and use of mineral phosphates we are indebted to the same source, the development and application of the views first advanced by Liebig.

Immediately after the announcement of his propositions, experiments were instituted with such satisfactory results that manufactories were established in England, and the importation of bones from Germany, the United States, and South America, became of great importance to commerce as well as to agriculture; while the earnest researches of scientific men soon discovered the most approved formulas for the manufacture of superphosphate of lime, and other concentrated artificial manures. The best methods of preparing these substances were thus made known both by scientific and practical men.

The advantage of these discoveries cannot be disputed, for though the farmer may be liable to be deceived in the purchase of a particular kind of superphosphate, yet there is no longer any doubt of its great value as a fertilizer, when properly made; while its introduction rendered substances previously of little worth, easily and quickly available for the nourishment of plants, and hence very valuable.

It was these investigations that made known the value of guano as a fertilizer. This substance has come into use since the year 1840, when twenty casks were landed in England, where it was soon found to be a most valuable manure. So great was the confidence immediately inspired in its value as a means of increasing the products and renovating the soil of the country, that the very next year, 1841, seven vessels were employed to convey 1,733 tons from the Chincha Islands to England, and the number increased in 1842 to forty-one British and three foreign vessels, and the amount imported to 13,094 tons. Before the close of 1844, no less than 29,000 tons were imported into that country from the coast of Peru, to say nothing of the many thousand tons which came from the Ichaboe and other guano islands at that time discovered. In 1855, no less than 210,000 tons were sold in England, being an increase of twenty per cent. on the consumption of 1854, which was at least twenty per cent. over that of 1853. From 1841, the date of the extraction of guano, to any extent, from the Chincha Islands, to the end of 1856, the quantity removed from those islands alone reached the enormous figure of two millions of tons, and the aggregate amount of sales in that time was $100,263,519. From the commencement of 1851 to the end of 1858, there were imported into the United States and used, no less than 673,412 tons. As a means of renovating many of the tobacco and cotton worn lands of the southern states, guano must be regarded as a valuable addition to the sources of fertility made known by modern science.

A thousand other facts might be mentioned to show that science has done much for

agriculture, and that there has been no small degree of progress already made, while investigation and experiment are, at the present time, being pushed with such vigor as to promise far more valuable and tangible results in future.

THE PROSPECTS OF AGRICULTURE IN THIS COUNTRY.

Having given some of the features of agricultural progress in the preceding pages, it is proper to say, in conclusion, that the present is but the dawn of a new era—an era of improvements of which we cannot yet form an adequate conception. The scientific discoveries, the mechanical inventions, the general spirit of inquiry, and the wide-spread intelligence which have been alluded to, indicate that a greater application of the mind to the labors of the hand distinguishes the present generation over all preceding times in a manner which those only can appreciate who will look back and consider the past—the slow growth of new ideas and new practices, the struggles with prejudice, ignorance, the want of markets, and the want of means, all of which contributed to depress American agriculture fifty years ago, and to keep it at a point wretchedly low, compared even with what it is at the present time. We have seen not only the calling, but the men who live by it gradually rising in dignity, in self-respect, and the respect of mankind. It is an imperative law of society that educated mind and educated labor will take its position above uneducated; in proportion as the farmer of to-day is better educated and more intelligent than the farmer of half a century ago, the former would naturally stand above the latter in the general estimation of the community. But in many other respects the farmer of the present day is far in advance of his forefathers. His labor is easier, and his mental activity is consequently greater. The same amount of manual labor produces more, and the farmer has time for the culture of the mind and the social virtues, as well as the farm, and agriculture holds a position of pre-eminence unknown at any former period.

These changes we have seen in our own day, and we know that a higher development of our agricultural wealth must go hand in hand with an increase of population, if there were no other stimulus to its growth. Now, if we consider the immense area of the United States, and the facilities for the expansion of our population, the mind itself is incapable of fixing limits to the increase of this grand interest, already involving a greater amount of the wealth of the country than any other, producing annually to the value of more than sixteen hundred millions of dollars, and capable of a hundred-fold greater development than that which it has already attained.

The original area of the country was but 820,680 sq. miles, till the purchase of Louisiana, in 1803, brought an addition of 899,579 more, and the acquisition of Florida, in 1819, an addition of 66,900 square miles. The annexation of Texas gave us 318,000, and that of Oregon 308,052, to which is to be added the territory acquired by the treaty with Mexico, of 522,955 square miles, and we have at the present time the vast extent of nearly three millions of square miles, or 2,936,166.

It is expected that the census of 1860 will show that the population is somewhat over thirty millions; possibly it may be thirty-three millions. The annual increase since 1790 has been four times as great as that of Russia, six times as great as that of Great Britain, nine times as great as that of Austria, and ten times as great as that of France; and if the ratio of increase in our population from 1840 to 1850 should continue to 1890, we shall have a population of one hundred and seven millions. The density of population in 1850 was less than eight persons to the square mile, or, more accurately, 7.90. That of the New England states was less than forty-two (41.94) to the square mile. That of the middle states was about fifty-eight (57.79), while Texas and California had less than one to the square mile. If we had the density of population to be found in Spain, it would give us two hundred millions; if that of France, it would give us five hundred millions; if that of Belgium (402), it would give us eleven hundred and eighty millions.

The area of the Pacific slope of this country is 786,002 square miles, or 26.09 per cent. of the whole territory of the United States. The area of the Atlantic slope, proper, is 514,416 square miles, a ratio of only 17.52 to the whole. The area of the gulf region is 325,537 square miles, or 11.09 per cent. of the whole; that of the northern lake region is 112,649 square miles, or only 3.83 per cent., while that of the Mississippi valley and the region water-

32116

ed and drained by its tributaries is 1,217,562 square miles, or 41.47 per cent. of the whole, or more than two-fifths of our national territory.

The number of farms and plantations in the United States in 1850 was about a million and a half, or more strictly, 1,449,075, and the number of acres of improved land, one hundred and thirteen millions. The number of acres of unimproved land was more than one hundred and eighty millions. The proportion of improved land to the unimproved was greatest in New England, or twenty-six acres in a hundred; the proportion in the southern states was sixteen, in the north-western twelve, and in the south-western only five in a hundred.

These farms, with comparatively few exceptions, are owned in fee by the farmers who cultivate them, thus giving a constant stimulus to improvement and permanent occupation, rousing the energy and enterprise of individuals as no other interest could. All these facts have an important bearing upon the future prospects of agriculture in this country, and they cannot be overlooked.

Taking, now, a general survey of the whole territory of the United States, I suppose it would generally be conceded that the region of the Mississippi is, on the whole, the most strictly agricultural portion, while, as we have seen, the actual development of its agriculture is scarcely more than begun. Mr. Calhoun, glowing with enthusiasm in contemplation of the immense and almost boundless resources of that great section still remaining to be developed, used the following language: "Looking beyond to a not very distant future, when this immense valley, containing within its limits one million two hundred thousand square miles, lying in its whole extent in the temperate zone, and occupying a position midway between the Atlantic and the Pacific oceans, unequalled in fertility and the diversity of its productions, intersected in every direction by the mighty stream, including its tributaries, by which it is drained, and which supply a continuous navigation of upward of ten thousand miles, with a coast, including both banks, of twice that length, shall be crowded with population, and its resources fully developed, imagination itself is taxed in the attempt to realize the magnitude of its commerce.". A commerce, he might have added, owing its whole existence to agriculture alone.

When the period foreseen by that great statesman shall arrive, the millions of people which shall then occupy the fertile valley of the Mississippi may look back upon the labors of the early pioneers in improvement, and give a retrospective application to the sentiment of Dean Swift, that "*Whoever has made two ears of corn, or two blades of grass, to grow upon a spot of ground where only one grew before, deserves better of mankind, and has done more essential service to his country, than the whole race of politicians put together.*"

Then, too, will be realized and appreciated the grand truth of the remark of Daniel Webster, that "agriculture feeds; to a great extent it clothes us; without it we should not have manufactures, we should not have commerce. They all stand together like pillars in a cluster, the largest in the centre, and that largest is AGRICULTURE!"

COTTON CULTURE.

CHAPTER I.

ABUNDANCE OF LAND—HIGH WAGES OF LABOR DEPENDENT ON COTTON AND GOLD.

The high prices of labor in our country, and the large profits of capital, have been remarked from the earliest period of our history. Adam Smith, in his "Wealth of Nations," proposed an explanation of these two peculiarities, and there is no doubt that his keen insight discovered their true cause in the abundance and cheapness of good land. The large products of our rich virgin soil, purchased from the Indians at a mere nominal price, enabled the farmer to offer high wages to the laborer, and large interest to the capitalist. The owner of the land, who was generally a laborer himself, paid no rent, and had made but a small outlay to purchase his farm, so that nearly the whole of his product was the reward of labor. If he could find a poor man who had not means enough to purchase and stock a farm, he could afford to offer him high wages, because he would be himself more than paid by his increased products. These high wages soon enabled the hired laborer to become a land-proprietor himself, and both were then competitors in the market for all the labor that could be hired. This competition forced the rate of wages as high as their abundant crops authorized them to pay. The artisans of the towns were tempted from their shops by the large reward offered for their labor in the country; and the few who remained at their trades asked high prices for their work. These they readily obtained, for their only competitors were across the sea, three thousand miles distant, with slow and irregular communication, so that the foreign mechanics could not force those who were here to reduce their prices to the standard of the old world. Thus, in the town and the country, in mechanical as well as agricultural labor, a high rate of wages was kept up by the abundance and cheapness of good land.

As capital is an aid to labor, by enlarging its products, the rate of interest is high where labor is productive. The distrust of capitalists who were separated from us by the wide Atlantic, and their ignorance of our pursuits, and means, and credit, prevented them from entering into competition with the capitalists here, so that they easily obtained all the borrower was able to pay. This was a very high rate, because the money was of great advantage. Whether the farmer borrowed it to buy more lands, or ploughs, or stock, or the mechanic to enlarge his powers of production by new machines, or tools, or materials, both were able to pay a large per-centage, on account of the profits of their increased business. Thus cheap, rich lands not only advanced the rate of wages, but of interest also.

This explanation was satisfactory during all the period of our colonial history. It was still plausible after the war of Independence, for, although our population had advanced into the interior, and the price of lands along the sea-board had risen so that the products of the soil were charged, before they could be exported, with rent or with the cost of inland transportation, leaving a smaller portion of the proceeds for the share of the laborer, the wars in Europe connected with the French Revolution increased the demand for breadstuffs, and maintained them at high prices. Our neutral position gave us the carrying trade between the belligerents, and this required a large number of American ships. These being built of timber procured from our abundant forests, brought large returns to the laborer. The trees that were felled and converted into ship-timber cost nothing, or but a trifle; so that the whole value of the timber consisted of wages only, and the cost of transportation to the sea-port. As this distance was short, nearly the whole was wages.

Thus, even to the war of 1812, our rich, cheap lands were the source of our prosperity, and the explanation proposed by Dr. Smith for the high rate of wages and of interest prevailing here was still satisfactory. But when peace was restored, in 1815, and the immense armies of the different states of Europe were returned to their homes to become producers instead of consumers; when the several countries encouraged their own shipping and their own farmers by restoring their usual prohibitions and restrictions, the advantages we possessed before the war were very much lessened. Our country had by this time become more populous. Lands along the sea-board had risen in price; the people had penetrated the interior; the distant transportation had become a heavy burden to the producer; and thus, at the very same time that the European demand was lessened, and the price depressed, our ability to supply the demand with profit was decreased. The money value of our products was diminished, and the laborer's share in this value was at the same time lessened. The usefulness of our cheap lands was decreased, and their advantages were less and less experienced.

If we come down to recent times, our advantages have not improved. Our country has become larger. The region of cheap land is beyond the Alleghanies. We must take a journey of a thousand miles from New York, crossing the Ohio and the Wabash, passing Indiana and Illinois, before we reach the country of cheap lands. The grain that is brought down the Hudson from Albany has been carried more than three hundred miles, in the Erie canal, from Buffalo, and more than a thousand, by vessels on the lakes, from Chicago, and those from the interior of Illinois by railroad. There the land on which it was produced is worth ten, twenty, fifty dollars per acre. Now, however cheap the transportation by railroad and on the lakes, the canal, and the river, the freight must be a large per-centage of the sales at New York. The rent of land in Illinois is also to be deducted, leaving but a small balance to be finally paid the laborer who has produced it. We must go hundreds of miles further to reach the region of cheap land, and then the increased cost of transportation will neutralize the advantage of procuring land at a dollar and a quarter per acre.

Now, will the cheap lands of Iowa, and Wisconsin, and Nebraska, explain our high rates of wages? In colonial times the product was made along the Atlantic, and nearly the whole price at Philadelphia went to the laborer. Now, a large per-centage must be deducted for the two thousand miles' carriage by land, lake, canal, and river, and the laborer's share is small. The truth is, the pioneer is poorly paid; he is struggling hard for a mere pittance. His receipts are small, and he can give but a small price for the hireling he employs to assist him on his farm. He is no longer the cause of high wages through the whole breadth of the land. His influence and empire have ceased.

Besides, our country has increased in population so largely, that the foreign demand for flour and other products of our lands will not pay for a tithe of our necessary wants, which must be supplied from abroad. Our people have increased in wealth, and their wants for wines, and silks, and other luxuries, cannot be paid for by the export of flour and grain, and the products of our forests. If, besides agricultural productions, we are forced to export manufactures to pay for our foreign supplies, the price of labor, which is the main element in the cost of manufactures, must at once fall to the European standard.

If, then, we had cheap land, even on the Atlantic, we could not pay for our present large supplies of foreign goods, so that these could not maintain our high rates for wages and interest; much less are they able to do it when they are thousands of miles from the coast.

A reference to the history of our foreign commerce will illustrate the principles we have been referring to. When our general government was first formed, our population was less than four millions; of these ninety-five per cent. were along the Atlantic slope, their average distance from the coast being less than a hundred miles. Our average domestic exports for the five years from 1790 to 1794, were less than twenty-two millions of dollars. Of these, flour alone averaged more than 800,000 barrels, and wheat more than 1,200,000 bushels; making a value of more than six millions of dollars. Other products of the farm and the forest made up nearly the whole of the balance. Now when lands were cheap, and near to the seaports; when the forests bordering on the coast were not yet thinned or cut down, the laborer had a rich and abundant harvest, and high wages could be maintained by our cheap lands.

Ten years later, our population had risen to five millions, of which ninety per cent. yet occupied the Atlantic slope. Our domestic exports had risen to forty millions for the five years after 1800; and of these, flour alone amounted to eight millions and a half, its average price being $8.40, and the number of barrels exceeding a million. The demand for our agricultural products was now large and the price high; so that the imports could yet be paid for by the products of our lands and our forests. These were still near the coast, and nearly all their proceeds belonged to the labor that produced them.

In 1810 our population had increased to 7,000,000, of which 80 per cent. were on this side of the Alleghanies. For the next two years which preceded the war, our exports of domestic produce reached $43,000,000, of which flour constituted one-fourth, the number of barrels exceeding 1,100,000, and the average price being $9.66. Other products of our lands, yet cheap and near the coast, made up a large portion of the means we used to pay for our foreign supplies, and up to this time it may be justly said that high wages were sustained by the abundance of our fertile lands.

But what a change in 1820. The people had increased to 10,000,000, 40 per cent. of whom had their homes across the mountains. Our exports of domestic produce were over $50,000,000, and the whole demand for flour did not average, for the five years after 1820, 1,000,000 barrels, and that at only $5.68 per barrel. While the products of our lands had to be brought much further to market, the amount demanded for foreign countries, and the prices they gave for them, had declined. It was the same with the products of the forest. For the ten years after the war they were less than for the ten years before. The first were much nearer the sea, and for the last we gave more labor and received less money. The efficiency of cheap lands to pay for our imports was gone, and their power to keep up prices departed also.

If we come down to 1850, our population had reached 23,000,000, of whom only 54 per cent. were along the Atlantic. The centre of the agricultural population had receded from the seaboard and crossed the mountains. The grain produced along the coast was all wanted at home. New England did not produce her own supplies. The city of New York contained a half million of people, who could not be fed by the surplus of the empire state. The coal and iron districts of Pennsylvania had become better markets for grain and flour than Philadelphia. Populous cities had risen in the west, and all these intercepted the supplies of food that were to be sent abroad for the purchase of our exports. The only flour that could be exported had to be carried from five to fifteen hundred miles. The foreign demand was no greater than it had been fifty years before, and our exports only reached 1,000,000 of barrels; while $163,000,000 were needed to pay for our imports. The other products of the west were small, and so were those of the forest. It is evident, therefore, that cheap lands could no longer furnish the supplies to pay for our exports, much less could they keep up the price of labor above the foreign standard. The advantages furnished by nature in the early history of our country had ceased, and we were thrown on other resources, to keep up the prosperity and progress of our people.

But this prosperity has not ceased. There has been no step backward in our career. The high prices of labor and of capital have been sustained, and the onward progress of our country, in power, wealth, and greatness, has never received the slightest check.

That labor is still higher than in Europe, is abundantly evident. We import a large amount of cotton goods; the importer pays the expenses of transportation across the sea, and a duty of 24 per cent. at the custom-house, and yet sells his goods at the same price with the American manufacturer who has bought his raw material at a lower price than the foreign producer. There is no explanation of this possible, except that labor and capital are higher in this country than in Europe. The iron ore of Pennsylvania is as good and abundant as in England; fuel and limestone are as cheap, and as near to the beds of ore; but the English iron is not only imported under heavy duties, but carried into the interior, and sold in the very neighborhood of the American furnaces. These two manufactures have long been favored by the protection of government. Under the device of specific duties and minimums, the tariff for a while amounted to a prohibition on many of these goods. On all it was very large and burdensome. The manufacturers have had time and opportunity to learn and introduce

all the improvements, and skill, and knowledge that would facilitate and cheapen their production; they have had enterprise, and capital, and energy to manage and direct them; and there is no possible explanation of the continued import of these articles to the amount of millions and tens of millions of dollars every year, unless labor and capital were dearer here than in England.

Perhaps a more striking proof that wages are higher here than in Europe may be found in the immense emigration into the United States from foreign countries. The principal motive of these emigrants is to improve their condition. The Irish laborers who rejoiced in the old country at having meat once a week, are here able to place it on their tables three times a day; to whet their appetites with as much whiskey as they may wish; to enjoy comforts and luxuries they never dreamed of abroad; and to send back to the parents, and brothers, and sisters they left behind, millions of dollars every year, that they also may come here and participate in the same prosperity. The Germans bid adieu to their homes and fatherland that they love so well, and come over by tens of thousands to buy land, and build fine barns, and lay up treasures for old age or for their children; while in their own country they would have been poor and humble peasants all their lives.

This high price of wages is of the utmost importance. It is the source of our rapid increase in wealth and greatness, and the exact measure of our prosperity. It belongs not merely to the day laborer who works with his hands, but to the artisan who has skill, and to the man of talent who has brains. The superintendent and the master manufacturer, as well as the weaver, receive high wages; the captain of the ship as well as the sailor; the merchant as well as his porter; and as industry, enterprise, and talent earn higher rewards here than in any other country, the workman is inspired with new zeal, his aims and aspirations are raised, wealth accumulates with greater rapidity, and every thing that makes a country prosperous and powerful is developed with a quicker growth.

If, then, it is a fact that wages are higher here than in Europe; if this is a fact of the utmost importance to the prosperity and greatness of our country, the question recurs, How is this high rate of wages sustained? If not by cheap lands, what other advantage have we? the gift of nature or our own arrangement, by which we are able to have an active commerce with all the world, and a free interchange of commodities with every country, and yet to sustain a higher price for labor and capital than the other nations with whom we trade?

The only way to keep up the rates of wages and of money higher than in Europe, is to produce some articles here that are in large demand abroad, for which we have peculiar advantages, so that we can make them cheaper than other countries, in spite of our high price for labor and our high interest for money.

Such an article we have in cotton. It is of prime necessity, and in large demand abroad, because it furnishes the cheapest material for clothing, and for other purposes of civilized life; it is produced here under such favorable circumstances that we can supply this demand at a fair profit to ourselves; this profitable production being sustained by the favorable circumstances of our soil and climate, and by the use of cheap labor in the midst of a country where labor is dear.

The large demand for cotton in other countries enables us to pay for the imports that we must have, and also for others that we ourselves might supply, were it not that our high rates for labor and capital permit the foreign producers to undersell us in our own market, after paying heavy duties at the seaports, and the cost of transportation across the Atlantic.

It is easy to follow out the course of operations by which these effects are produced: the planter produces the cotton which is sold abroad, and buys the foreign supplies of the north, the south, and the west. The north carries the cotton to the foreign country, and brings back the returns. She delivers to the south her share, and pays for the balance in manufactures. After supplying herself, she buys food from the west with the remainder.

The manufactures of Europe being loaded with the expenses of transport across the seas, and with duties paid to the general government, the northern manufacturer can keep the prices for his goods up to the importing limit, and these the south is able to pay, because of the profit on her great staple, and the monopoly she has of the European market.

Thus are the high prices of labor sustained, and the foreign supplies of the country

paid for by the export of cotton, whose cost of production does not depend on the high paid labor of the country, but on the cheap labor of the negro slave.

During the last ten years the gold of California has had precisely the same effect, and its operations have been in every respect similar. The demand abroad for gold is of course unlimited; the cheap and profitable production of it here depends on the abundant gifts of nature. The eastern manufacturers sell their high-priced products to the miners, who are prevented from obtaining them cheaper by the distance from Europe, and the duties of the custom-house, and are able to pay for them by the abundant rewards they receive from their own labor. In this case nature, without any aid, makes the production profitable; in the other nature is aided by the domestic institutions of the south. But the effects are in both cases identical.

These two articles are assisted by rice and tobacco, which are in almost every respect similar to cotton. The demand abroad is not so great, and our advantages in their cultivation over the other producers for the European market are not so marked and decided. They are, however, real, and they may properly be regarded as aids to cotton and gold in producing the effect.

The propriety and correctness of this explanation of our high prices is not affected by the fact that we also export some manufactures. This is done in spite of their high prices, because they are carried, not to England and France, but to Mexico, South America, and the West Indies, where our proximity and trade give us some advantages over the European manufacturer. A few cotton goods are carried to China; these are coarse, so that the superior cheapness of the raw material here partly compensates for the superior cost of manufacturing. This advantage is aided by the influence of fashion, habit, and accident; by the superior adaptedness of our goods to their wants at the commencement of the export, and the good will and good name that were then secured; and by various other inducements which often lead to the purchase of higher-priced commodities even in a free and open market. Some few manufactures are even carried to England, France, and Germany, on account of the temporary superiority of our workmen, or of new improvements in the mode of manufacture not yet introduced abroad, or of new inventions, or discoveries, or patents. The whole amount of these being small, and due to real advantages we have here, or to accident, or fashion, or taste, or prejudice, do not form any objection to the explanation we have proposed, that high prices are maintained in our country chiefly by cotton.

So also with agricultural products; we export some of these to the markets on our own continent, where we have many advantages over the European producer. In some of these, as in the flour to Brazil, these are very considerable. Our import of coffee is large, and our exports in return are very small, and consequently freights are low. We produce a kind of wheat in our southern climate manufactured into flour, which will not readily sour in the voyage across the equator. These two reasons secure a large demand for the brand of southern mills. And there are many other circumstances that induce a few shipments without reference to price, so that even the small influence of our agricultural exports in sustaining prices is not due entirely to cheap lands, but to position, accident, advantages of climate, and other things of this kind.

If we refer to our commercial statistics, it will be seen how small a ratio our manufactures and the products of our cheap lands bear to the whole exports. In 1850 the cotton, rice, and tobacco exported were worth eighty-five millions of dollars, and formed sixty-three per cent. of the whole value; the flour, grain, cheese, butter, lard, tallow, beef, pork, naval stores, and many other animal and agricultural products were less than twenty-four millions, and constituted only eighteen per cent. of the domestic exports; while the manufactures of every kind, including those of cotton, were only fifteen millions, forming but eleven per cent. of the exports. For 1859, the last year of our published returns, the value of cotton, rice, tobacco, and gold was $245,000,000, or seventy-three per cent. of the whole value; all the products of animals and of the field, forty-two millions, or thirteen per cent. of all; and manufactures of every kind (including eight millions of cotton goods) thirty millions of dollars, or nine per cent. of the whole exports. Of cotton alone the exports were $161,000,000.

We repeat, then, that it is cotton almost entirely that keeps up the price of labor and capital in this country above the rates

of every other part of the world: that it is aided in this by the gold of California and the rice and tobacco of the Southern states, and, to a very small and insignificant extent, by our cheap lands and abundant forests; that cotton brings about this result because it is in large demand in foreign countries, being the cheapest article of clothing; because our planters produce it in large amounts, and at great profit to themselves; and because we have almost a monopoly of the foreign market, on account of our ability to produce a cheaper and better article than any other country in either of the four quarters of the globe. This cheapness is secured by the advantage of our soil and climate, and by the aid of cheap labor, which does not come into competition with the other labor of the country so as to depress the general standard of wages.

To establish the first of these propositions, we have only to refer to the history of the cotton manufacture of Europe and America, and especially of England, as found in another chapter.

CHAPTER II.

PRODUCTION AND PRICES OF COTTON.

Cotton has been employed as a material for clothing from the earliest times, and at the beginning of the eighteenth century nearly two millions of pounds were imported into England to supply their spinning wheels and looms, and to be used for the other purposes to which it was applied. In 1751 the imports rose to 2,976,610 pounds, in 1764 they were 3,870,392 pounds, and in 1781 they had increased to 5,198,778. At this period they took a sudden rise, and in the next five years increased to nineteen millions, and in the next five to twenty-nine millions of pounds, thus making a more rapid progress in five years than in the preceding hundred.

The cause of this rapid advance was the introduction of machinery for the spinning of cotton. This reduced the price and increased the demand, and led to the exclusion of linen, silk, and wool, and the substitution of cotton in their place.

As early as 1738 Wyatt had taken out a patent for the spinning of cotton by machinery. He was assisted by Paul, who afterward took out a patent for carding the cotton by machinery. But so complex and imperfect were the details of this machinery of Wyatt and Paul that these projects failed. The principle was discovered, but important practical improvements were wanting before it could be made successful.

In 1769, Arkwright took out a patent for his water-frame and throstle, and in 1770, Hargreaves invented his spinning-jenny, both of which were on the same principle as Wyatt's machine, but led to a very different result. Between 1770 and 1780 these machines were fairly tested, and in the next ten years they were rapidly introduced. The patent of Arkwright was broken down in the courts of law in 1785, by the persevering opposition of those who had wrongfully appropriated his discoveries; and the expiration of the other patents in a short time opened the whole manufacture to the free use of the people. In 1800 the imports of cotton had risen to fifty-six millions, an increase of eleven fold in twenty years. In the first eighty years of the eighteenth century the increase had been one hundred and fifty per cent.; in the last twenty years it had been a thousand.

These improvements of Arkwright and Hargreaves were not the end and perfection of the inventions for spinning. These machines were not adapted for the finer numbers, and in 1779 Samuel Crompton invented the mule, which combined the excellencies of the two former inventions. No patent was taken out for it, and it was worked for a while in secret. But the high prices Crompton obtained for his yarn soon attracted such attention that he could no longer keep it concealed. For number forty, he received three dollars and a half a pound; and for number sixty, six dollars. These prices were commanded by the superiority of his yarn, and the mule was, therefore, a great improvement on the old machines. At first the invention was quite imperfect, but it was soon improved and brought nearly to its present perfection. In the course of ten years it was everywhere introduced. Under its influence the demand for labor rapidly increased.

The next important invention was the power-loom, first proposed and patented by Cartwright. The patent was issued in 1787, but all efforts failed to introduce it successfully until after the beginning of the present century. The improvements in dressing the warp, which were indispensable to the suc-

cess of the power-loom, were made in 1803. In 1813 there were twenty-four hundred of these in use in England. In 1820 these had increased to fifty-five thousand, and in 1833 to a hundred thousand.

The steam engine of Watt was not less important to the manufacture of cotton than these improvements in spinning and weaving. The water power of England was limited, irregular, and entirely insufficient for the numerous machines that were soon introduced, and the new motive power was especially adapted to their work. Being cheap on account of the abundance of coal, regular in its operations so as to give a uniform stroke to the loom, not liable to interruptions and strikes as human labor had been, it has contributed very much to the progress of the cotton manufacture. Watt's first patent was taken out in 1769, but it was not until 1785 that steam was applied to the driving of a cotton mill. In 1800 there were thirty engines employed at Manchester, and in 1859 the number in the whole kingdom had risen to twenty-two hundred.

Under the influence of these improvements, the progress in the manufacture of cotton has been of the most rapid description.

It was under the influence of those great inventions that the importations of cotton rose in twenty years—from 1781 to 1801—from five to fifty-six millions of pounds, and the English exports of cottons from two millions of dollars to twenty-seven millions. In all this time the price of the raw material rather advanced than decreased. According to Tooke's "History of Prices," the range for different qualities of West India and Surinam from 1780 to 1785 was from 13 pence per pound to 40; while from 1795 to 1800 it was from 15 to 55 pence. But the cost of yarns was very different. In 1786 and 1787 the price of No. 100 was nine and a half dollars a pound; in 1790, seven and a half dollars; in 1795, four dollars and three quarters; and in 1800, two dollars and thirty-five cents.

We thus see that the effect of the introduction of machinery was to give an immense increase to the consumption of cotton, a large reduction in the price of cotton goods, and a substitution of cotton for wool, silk, and flax, and an increase in the demand for labor.

The improvements which were made after 1800 were not less important than those which preceded it. The importations into England increased from 1800 to 1810 more than a hundred per cent., being from fifty-six to one hundred and thirty-two millions of pounds. The American war interrupted the progress in the next decade, but in 1820 it had risen to one hundred and fifty-two millions. For the next ten years the rate of progress was nearly a hundred per cent., the amount in 1830 being two hundred and sixty-four millions. In 1840 the amount was five hundred and seventeen millions, the increase being nearly a hundred per cent. In 1850 the imports were six hundred and sixty-nine millions; and in 1859 they were eleven hundred and eighty-one millions. In 1860 the amount received from the United States alone reached the enormous sum of eleven hundred millions, to which the East Indies have made an addition of two hundred more, and other countries nearly a hundred, making a total of fourteen hundred millions of pounds.

This increase since 1780, when machinery was first successfully applied to the spinning of cotton, has been two hundred and eighty fold. Since 1800 the increase has been twenty-five times; since 1820 twelve times; and since 1840, three times. During the year 1858 the value of England's manufactured cottons was four hundred and thirty millions, and in 1859 four hundred and eighty millions of dollars.

At the same time the manufacture has been growing rapidly in every other country. The abundance of coal in England, the cheapness of iron and machinery, and the low rate of interest on capital, as well as the enterprise, industry, and skill of her people, have placed her before other countries; but their progress has been rapid, and their demand for cotton large and increasing.

From 1820 to 1840 the French imports of cotton rose from forty-four to one hundred and four millions of pounds, and in 1855 to one hundred and sixty-eight millions. And the recent abolition of the duty on raw cottons has made the increase still more rapid. In all the other countries of Europe, the progress has been greater than in France. The comparative magnitude of the manufactures of other countries than England may be seen by our exports in 1860. To England, we sent 2,669,000 bales; to France, 589,000; and to the rest of Europe, 515,000. The average of 1839 and 1840, when compared

with the average of 1859 and 1860, is as follows:—

	1839-40. Bales.	1859-60. Bales.	Increase per cent.
Great Britain	1,022,000	2,344,000	130
The Continent	453,000	1,069,000	136
The United States	336,000	953,000	154
Total	1,811,000	4,366,000	141

As England exports much of the cotton she receives, and all obtain more or less from other countries than the United States, the comparative importance of other countries will be best seen by the consumption of all kinds of cotton. The weekly consumption for the years 1855 and 1856 was as follows:—

	1855. Bales.	1856. Bales.
Great Britain	37,384	43,518
On the Continent	26,554	27,524
The United States	14,822	15,768

In the United States, the increase in the consumption has been more rapid than in any other country:—

Average from	1826	to	1830,	127,000 bales.
"	1831	"	1835,	195,000 "
"	1836	"	1840,	275,000 "
"	1841	"	1845,	363,000 "
"	1846	"	1850,	539,000 "
"	1851	"	1855,	686,000 "
"	1856	"	1860,	818,000 "

This large increase in the manufacture of cotton has been accompanied with a decline in the cost of the raw material, and a still greater decline in the cost of manufactured goods. The price of American cotton, from 1800 to 1820, averaged twenty-two cents per pound; from 1820 to 1840, thirteen cents; and from 1840 to 1860, only ten cents. In the same time the improvements in machinery, and in the art of manufacturing, and in the skill of the workmen, have reduced the price of yarns, and prints, and muslins, and every product of the loom in a much greater ratio. For number 100, the price of yarn in 1786 was nine dollars and a half; in 1796, four dollars and three quarters; in 1806, one dollar and seventy-two cents; in 1812, one dollar and twenty-seven cents; in 1830, eighty cents; and in 1854, fifty-eight cents. In the lower numbers the decrease has been nearly as large. In all kinds of cotton goods the decrease in price is made manifest by the change in the official and declared values of the exports of Great Britain. The official is a fixed nominal price for every article exported, and the declared is the real value. The former may therefore be regarded as representing quantities, and the latter values. Now the official and declared values of all kinds of goods for

1814	were	$88,000,000	and	$100,000,000
1824	"	151,000,000	"	92,000,000
1833	"	232,000,000	"	92,000,000
1840	"	366,000,000	"	123,000,000
1850	"	569,000,000	"	141,000,000
1858	"	846,000,000	"	214,000,000

These numbers show that while the amount has increased nearly tenfold, the value has only doubled, and that therefore the goods are five times cheaper now than in 1814.

We have now followed the cotton manufacture from its rise, a century since, down to the present time. Its immense magnitude in every country of Europe, its rapid progress, its exclusion of other materials for clothing, and the great decrease in the price of manufactured goods, are established facts which show how large and how intense is the foreign demand for our cotton. This is the first proposition we proposed to consider in our explanation of the high prices of labor and capital in our country, and we now pass on to the second, that the production of cotton is very profitable to the American planters.

In proof of this, we shall show that the cultivation of cotton has attracted labor and capital from other pursuits in the cotton states, until it has concentrated almost their whole productive power upon this single article; that it has drawn wealth and labor from other sections of the country to be devoted to it, when other employments were inviting their attention; and that these and other facts demonstrate the profitableness of this culture.

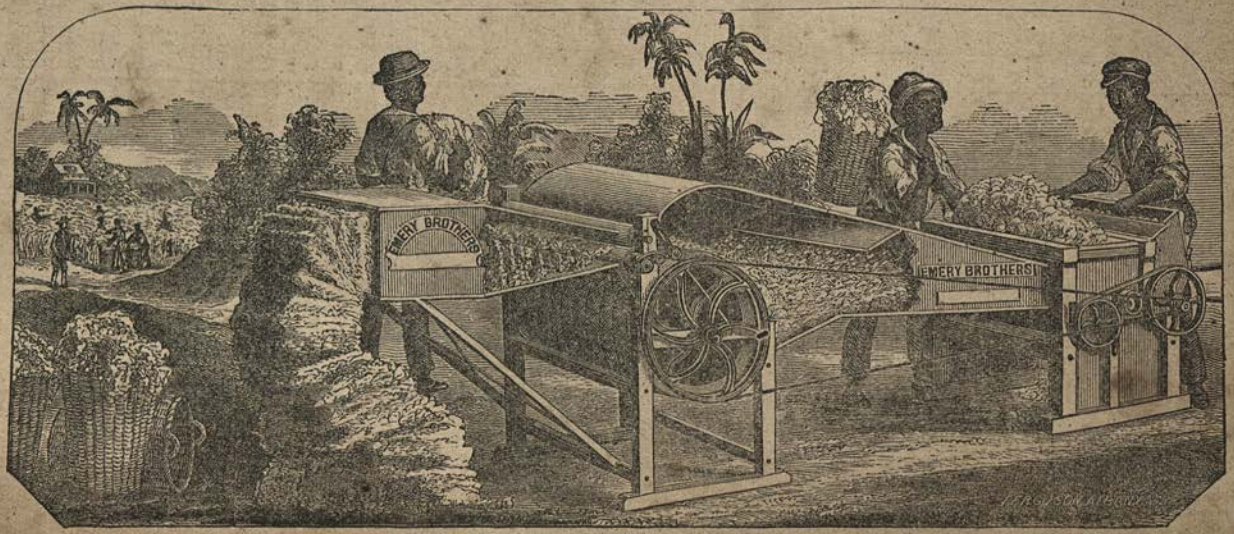
The cotton plant of Europe is a native of India, whence it spread very slowly into China and Persia, Africa and Europe. But cotton is a native of this continent, and was diffused here everywhere before the arrival of the Europeans. It was found by Columbus in Cuba, on his first voyage, in 1492, and by Cortez in Mexico, and Magellan in Brazil, on their first visit to those countries in 1519. Pizarro saw it in Peru in 1532, and Cabeça de Vaca in California in 1536. In both divisions of the continent it had spread as far north and as far south as the climate would permit. All the three kinds of cotton were growing here: the herbaceous, or annual; the shrub, which lives three or four years; and the tree, which lasts for

twenty years. It is only the annual which is now cultivated in the United States. During our colonial history, it was introduced here from the West Indies and from the Mediterranean, and was extensively cultivated in gardens and small patches for domestic use from New Jersey to Georgia. A few bags were exported before the Revolution; but so little was produced, that a shipment of eight bales from Charleston, in 1784, was seized by the custom-house authorities in England, on the ground that so large an amount could not have been grown in the United States. As it was cultivated to advantage in the West Indies, near to our coast, many attempts were made to extend its culture here. Some seeds were brought from the Bahamas, and successfully cultivated along the coast of South Carolina and Georgia, soon after the war of independence. This was carefully improved from year to year, by selecting the seed of the finest plants, by the application of the most suitable manures, and by choosing the best localities for its cultivation, until the fine, silky variety, known as the sea island cotton, was naturalized in our country, and brought to the greatest perfection of staple. The seed is easily separated from the lint by passing it between rollers, which push back the seed and permit the cotton to pass through. This is a tedious work, but the length and fineness of the fibre secured so high a price for the product, that the cultivation has continued profitable from its first introduction to the present time. It is mixed with the best wool or with silk, or is used by itself for the manufacture of the finest fabrics, and commands a very high price in the market, two, three, or four times more than the short staple cotton. Our country has a monopoly of it; for neither in Egypt, Pernambuco, or the Isle of Bourbon, where the best cottons are grown, can they produce a staple of the same length and fineness. Sometimes a dollar a pound is paid for it; and even higher prices have been offered for favorite crops.

The cultivation of this variety is limited to the islands along the coast and a narrow belt near the sea, though in Florida it may be grown in any part of the peninsula. When planted in the uplands it degenerates quickly and is less productive. The whole value of this crop is now from eight to ten millions of dollars, and varies but little from year to year. For the last three years the crop has averaged 47,000 bales, and for the three preceding, 43,000 bales. The variety of cotton that is planted in the interior is the native Mexican species. It adheres closely to the seed, and cannot be separated by the common roller gin. When first cultivated it was separated by hand, but this operation was slow and tedious, and limited the cultivation for the purposes of commerce. In 1791 the whole exports of the United States of all kinds of cotton were only 189,316 pounds—which is less than the product of many of our single plantations at the present time. In 1792 it was four hundred and nineteen bags, weighing 138,328 pounds; and in 1793 it was 487,600 pounds. At this period it took a sudden start upward, and rose in 1794 to 1,601,000, and in 1795 to more than six millions of pounds. The cause of this sudden increase was the invention, by Whitney, of the saw gin.

This ingenious gentleman was a native of Massachusetts, and had come to Georgia as a private tutor in 1792. While residing as a guest in the family of Mrs. General Greene, near Savannah, he was informed by some of her visitors from the upper country, where the short-staple cotton was cultivated, of the great desirableness of a machine for separating the cotton from the seed. To his inventive turn of mind, this suggestion was enough to attract his attention. He obtained some of the seed cotton from Savannah, and soon devised the saw gin. At first he used bent wires or teeth, like those of the common card, but much larger and stronger, and these were placed in rows on a revolving cylinder. The cotton was separated from this cylinder by a frame of parallel wires. As the cylinder revolved, the teeth extending through the wire frame caught the cotton and drew it through the grating, but the seeds being too large to pass between the wires, were separated from the lint. The teeth being found too weak to pull the cotton from the seed without being bent or broken, he substituted a circular saw in their place. The teeth of the saws being large, and shaped like the beak of a bird, had more strength and were equally efficient. Behind the saw-cylinder, bushes were arranged to remove the cotton from the saws, and thus the object was accomplished. When he had completed his gin, entirely by the labor of his own hands, he invited some farmers to see it tried, and all were satisfied with its work. It differed es-

COTTON CLEANING BEFORE THE INVENTION OF THE COTTON GIN.



COTTON GIN FROM THE WAREHOUSE OF C. V. MAPES.

sentially from the roller gin introduced from the Bahamas, and invented there by Joseph Eve, the son of a Pennsylvania loyalist, and afterward a resident of Georgia. The roller gin had also teeth and a wire frame, and the revolving teeth caught the cotton through the wire frame, but they only delivered it to the rollers which separated the cotton from the seed. In the saw gin the teeth and the wire did the work of separation. Though Eve's was like Whitney's, and may have suggested it, they were on different principles. The one was suited for the sea island, and the other for the upland.

Before Whitney could take out his patent, many of his gins were constructed by the farmers and put to work. His patent was issued in 1793, and having obtained the co-operation of Miller, who furnished the capital, they undertook the manufacture of the gins for sale, and the ginning of cotton by the pound for the planters, and the purchase of the seed cotton, that they might clean it themselves. Although these plans required large capital, Whitney was poor, and Miller had but small means when this project was undertaken. In 1794, when they were preparing several machines for sale, Whitney was taken sick, and his workmen were prostrated by the fevers of the climate. These difficulties prevented the construction of many gins by the patentees; and as the want of them was great, and the machinery very simple, many were built by common mechanics, and thus extensively introduced. In 1795 Whitney's shop and all his machines were destroyed by fire, and this was another hindrance to the sale of the patented gin, and another incentive to those who were trespassing on his rights. To put a stop to these infringements of their patent, suits were instituted by Miller and Whitney. But the patent law had just been passed by Congress, and the general government was little known or respected. The juries were composed of men who were all interested in breaking the patent. The gin makers had strong interests prompting them to resist the suits. Witnesses were found who testified that they had seen the gin in Europe, where it was used for making lint! The suits were postponed and delayed by the ingenuity of lawyers, and as the United States courts only met at long intervals, these delays were the more serious. Under these difficulties, the patentees often failed in their suits, or obtained but small damages, or were engaged in long, vexatious, and expensive litigation, so that the courts became an expense to them instead of a protection. The gins were everywhere introduced, with or without the patent-right. This was the case both in Georgia and South Carolina; but the delay and failure of the suits in Georgia induced the patentees to propose to the legislature of South Carolina to sell the right for that state for $100,000. An offer of $50,000 was made them and accepted, and this was nearly all that was ever received by the inventors. Whitney, unlike Arkwright, only received barren honors for his great invention; for even the purchase money of South Carolina was expended in the prosecution of the suits he had instituted against the trespassers on his rights.

The introduction of Whitney's gin acted like magic on the planting of cotton. In eight years from 1792 to 1800, the exports of the United States increased more than a hundred-fold. The value rose from $30,000 to $3,000,000, and the amount from 138,000 lbs. to 18,000,000. The whole of this was wanted in England, and the rapid increase in the demand there that followed the general introduction of Arkwright's inventions prevented any decline in price. The population of South Carolina and Georgia, where all of this cotton was raised, was only 507,000 in 1800; so that the amount was $6 to each individual, including the young and the old. This was not enough to purchase the manufactures and the foreign supplies they needed; rice and tobacco being both added to cotton in the exports of Charleston and Savannah. Those of rice alone were larger than cotton, and the production of tobacco was considerable. The immigrants from Virginia and North Carolina brought this cultivation with them, and it formed a large part of the trade at the sea-port towns at this early period. But it was soon to disappear, under the progress of cotton. In the next ten years, from 1801 to 1810, the production increased more than five-fold, from 18,000,000 to 93,000,000 of pounds and the value from $3,000,000 to $15,000,000. As the population had only increased 30 per cent. in these ten years, and as the exports of rice had risen from 94,000 to 119,000 tierces, the great change was in the transfer of labor from tobacco to cotton. The exports of cotton and rice in 1810 were more than $30 to each person, white and black, young and old, male and female; an amount which sufficiently indicates that nearly the

whole available labor was devoted to these two staples.

In the next decade the cultivation was interrupted by the war of 1812, and the exports only rose to 128,000,000 in 1820. But the high prices that followed the war stimulated the production to the utmost possible limit. Tobacco was no longer cultivated as an article of export. Rice was still planted in the swamp lands along the coast, because they were not well suited for cotton and because rice was itself a very profitable crop. Emigrants flocked from Virginia to engage in the culture of cotton; new lands were purchased from the Indians; more laborers were brought from Virginia to work in the cotton fields; and every hand that could be spared from other employments, white or colored, was appropriated to this one culture. In consequence of this transfer of labor, the exports rose in the next decade, from 1820 to 1830, more than 100 per cent., from 128,000,000 to 298,000,000 pounds.

For the next ten years the impulse to the cultivation of cotton was greater than ever. It was impossible for the cotton states to transfer any more of their labor to the culture. Some of their population was needed in the towns and cities to attend to the sale and shipment of their cotton, some to provide supplies for the planters, and a few were engaged in those mechanical pursuits which are absolutely indispensable, even in an agricultural country receiving its manufactures from distant places; but all the rest were engaged in the production of cotton. The planter raised enough corn to feed his stock, and provide bread for his family; he supplied generally his own meat, but for the most part his flour was brought from the north or west, and the towns were supplied with pork and flour from the same source. All his labor was appropriated to cotton, because it was more profitable than any other crop. All his profits from year to year were devoted to buying more negroes, that he might enlarge his cultivation of the one great staple of the south. The emigrants from Virginia, and North Carolina, and Tennessee, though at their first arrival they might prefer to plant tobacco or wheat, soon transferred all their hands to cotton. The lawyer, and the doctor, and the school-master, as soon as they earned any money, bought land and negroes, and became planters. The preacher who married an heiress or a rich widow, became the owner of a plantation. The merchant who wished to retire from the perplexities of business, and take his ease in the country, passed his old age in watching the cotton plant spring up from the fresh-ploughed ground, spread its leaves to the gentle showers of spring, stretch its long branches to the summer's sun, open its red blossoms, to be followed by the abundant fruit which showed their white treasures to the autumn sky, gladdening his heart with the abundant rewards of his labor. All the labor, all the capital, all the increase of population and wealth by immigration from more northern climates, all the accumulations of every trade, or business, or pursuit were devoted to this one cultivation; and though it had seemed impossible in 1830 to increase the cultivation to any considerable degree, the production rose in 1840 to 744,000,000 pounds, or six times the product of 1820.

During the next decade this favorite culture received a slight check. The increase in the demand, though outrunning every other business, had been overtaken by the still more rapid increase in the supply. Prices declined, and the capital of the country had an opportunity to look around for other employments. It readily found them in the construction of railroads, the erection of cotton factories for coarse goods, the production of the corn, and meat, and flour for the towns and cities, the cultivation of the sugar cane, and in those other mechanical and manufacturing pursuits which are the first enterprises of an agricultural people.

The south had other employments to which she might have turned her attention with advantage. She had fine shipping timber, and in great abundance, but she did not increase her shipping, because high as wages and interest are at the north, they are still higher at the south, and the competition between the two sections is so easy in shipping, that she could not engage in shipping even her own products, as long as other more profitable pursuits keep up the rate of labor and capital to their present high limits. The low prices of cotton from 1840 to 1850 did not, therefore, divert capital to shipping. The tonnage of Charleston averaged 50,000 tons from 1800 to 1810, nearly 40,000 from 1810 to 1820; 22,000 from 1832 to 1840, and 23,000 from 1840 to 1848.

The culture of rice was susceptible of very slight increase, because the only land suitable for its cultivation is the low, swampy

district along the sea, where the crop can be covered with water. From early times this valuable grain had been raised in all favorable localities, and, though a very profitable crop, no increase was practicable. From 1789 to 1798 the exports of the United States averaged 107,000 tierces; from 1799 to 1808 they were 82,000; and from 1809 to 1818 the average was 87,000. From 1820 to 1829 the whole crop, including the shipments to the north and the exports, averaged 120,000 tierces; from 1830 to 1839 they were 148,000; and from 1840 to 1848 the average was 162,000. These figures show little or no transfer of capital to this production, and the reason is that the lands suited to its cultivation are limited. For the year 1858 they were 173,000 tierces, showing the same steady, unchangeable condition of this culture down to the present time.

But although the cultivation of rice could not be increased, and the northern shipping was too easy a competitor with the southern, there were many employments in which the south could engage, before she would reduce the wages and profits down to the northern standard. Tanneries, forges, foundries, the making of shoes, buckets, hardware, furniture, clothing, machinery, and every manufacture where the bulk or the weight is considerable, can be profitably pursued. The negroes make good carpenters, shoemakers, tanners, workers in iron, and there is no employment pursued at the north to which their labor cannot be profitably devoted.

Of all these employments thus attracting her attention, the principal of those which she selected in the depression of 1840 were the construction of railroads, the culture of wheat, the manufacture of coarse cottons, and the planting of the sugar cane.

These railroads have nearly all been profitable. It may seem strange to those who have only heard of Harlem, and Erie, and New Haven, and Hudson River railroads, to be told that every railway of the cotton states has been profitable. The country is sparsely settled, and it cannot be from passengers. They have but little through freight to Tennessee and North Carolina, and it cannot be from the transit of goods. Their only product is cotton, and it is this that pays. Not only does the great staple enrich those who make it, but all who handle it and carry it. It is like the fabled Midas, and turns all things into gold.

Wheat, also, has been a profitable culture, because it is mainly consumed at home, and the price is usually the cost of flour in New York added to the cost of transportation. Even when fine seasons and a large crop enable the farmer to export some of his flour, the early harvest permits him to send it to New York before the new wheat of the north and west can be offered in the market, and thus secure to himself a high price.

So have the cotton factories generally been profitable. All that have been managed skilfully and faithfully have paid good dividends, and several have made fortunes for their owners. The oldest mill in the southern states, near Athens, Georgia, has been profitable from the start, more than thirty years since. Those at Graniteville and Roswell, favored with water power and wise management, have paid large and regular dividends. The one at Macon, though driven by steam, has been alike successful. Many of the others have done well, though the machinery has to be brought from the north, and the expense of labor and superintendence is high. A few have failed from frauds and dishonesty in the projectors or managers, some from carelessness and neglect of their duties by those to whom they were entrusted, and some from ignorance and imprudence. But always when well managed they have succeeded. They make the coarse osnaburgs and heavy shirting for the negroes, and the coarser numbers of yarn for the country looms of the planters. Many of them send their yarns to Philadelphia and New York, and dispose in this way of their surplus production. A few are working on finer unbleached cloth, and they are also doing well.

So, also, has some capital been devoted to sugar. The beautiful lands along the lower Mississippi have been appropriated to this crop. Under the protection of the tariffs of 1824 and 1828 the culture was started, and from 1835 to 1840 the production averaged seventy millions of pounds, worth over four millions of dollars. The low prices of cotton about this time encouraged the producers, and the amount for the next five years averaged one hundred and twenty-five millions of pounds, worth six millions of dollars. In the next five years the product rose to two hundred and eleven millions, valued at ten millions of dollars. From 1850 to 1855 the production still further increased, the amount being three hundred and forty-seven millions, and the value fifteen

millions. In the last five years—partly from the disastrous season of 1856, which not only ruined the crop for that year, but destroyed the plants for the next, and partly to the high price of cotton, which has diverted some of the lands to this culture—the average has only been two hundred and sixty-three millions; but the value of this decreased crop has been higher than ever, having reached seventeen millions of dollars.

To these and a few other new enterprises, the accumulating labor and capital of the cotton states have been diverted since the disastrous fall of prices in 1837. But the culture of cotton still went on, and with giant strides, too. The planters were more economical at home, raised more corn and bacon, so as to lessen their purchases from the west and from North Carolina; but, as the price of lands and negroes declined, the inducements to raise cotton were nearly as great as before. The average exports for the five years from 1836 to 1840 were five hundred and twenty-four millions; for the next five, the average was six hundred and eighty-eight millions; and for the next five, seven hundred and eleven millions. Here was an average increase much faster than the natural increase of the population, showing that, in spite of the diversion of labor and capital to new pursuits, emigrants were still arriving from North Carolina and Virginia, and transfers were still being made from the tobacco and wheat fields of Virginia to the cotton lands of the south.

After 1850 prices improved, and in the next five years the average exports rose to one billion and twenty-five millions of pounds, making an increase in the average production of nearly fifty per cent. in five years. For the five succeeding years the exports have not been completed at the treasury department, and the number of bales may be taken to measure the increase of production. From 1850 to 1855 the average crop was 2,882,000 bales, and from 1855 to 1860 it was 3,628,000, an increase which is twice as great as the natural increase of the population, indicating the continuance of the transfers of laborers to the cotton plantations.

And never before has the planting been more profitable than in the last few years. The price has not been so high as in 1819, or 1825, or 1836, when the planters were almost bewildered at the rates offered them for their crops; but by improved methods of cultivation, and greater facilities of reaching the market, their real earnings have been greater than ever. Higher prices have been given for land and for negroes than even in 1836. The wages of hired servants have been larger than ever; and the planters have been everywhere rich, prosperous, and happy.

The immigration into the cotton states, and the purchase of negroes from Missouri, Kentucky, and Virginia, are made manifest by the changes of population. The natural increase of the people of the whole country is less than thirty per cent. for ten years, after deducting the emigrants from Europe and the inhabitants of our purchased territories. Before 1820 it exceeded a little this ratio; but from 1830 to 1840 it was less, and from 1840 to 1850 not over twenty-five per cent. Now the population of the eight cotton states, from South Carolina to Texas, increased in the first decade of the present century fifty per cent., in the second decade fifty-five per cent., in the third fifty per cent., in the fourth fifty-one per cent., and in the fifth forty-one per cent. Thus, in all this period of fifty years, the real increase has been nearly double that of the natural; or, more exactly, in every ten years twenty per cent. of the existing population has been added from the more northern states.

CHAPTER III.

MONOPOLY OF THE MARKET—SLAVE LABOR—COTTON EXCHANGED FOR MANUFACTURES.

The history that has now been given of the great increase in the production of cotton; of the entire devotion of the labor of the cotton states to this single culture, even to the neglect in some places of the corn, flour, and meat necessary for the wants of their immediate neighborhood; of the large increase of the population in these states; of the increasing prices of land and negroes; of the investment of nearly the whole of the annual accumulations of the people in enlarging this one production, when others that are really profitable, for which they have advantages in soil, or in climate, or in position, are rejected—is an irresistible accumulation of proof of the second proposition that we proposed to consider: that the American planters are able to produce large amounts

of cotton at great profit to themselves; and we will pass now to the third proposition: that we have almost a monopoly of the foreign market, on account of our ability to produce a better and cheaper article than any other country in the world.

We have already adverted to the superiority of our sea island variety. It is the best cotton in the Liverpool market, and commands the highest price. It has not been produced in larger quantities, because the localities where it can be cultivated are few. But for the amount we make there is no competition. The average value of our exports of this kind was $6,000,000 from 1805 to 1815, including the years of the war and the embargo; $10,000,000 in the next ten years; $10,000,000 in the next; $7,000,000 in the next; and $9,000,000 in the last, from 1845 to 1855. For 1859 the amount was 13,713,000 pounds. It is evident from these figures, that the production of sea-island cotton is stationary.

When we began the production of cotton, the supplies of Great Britain were furnished by the Levant and by America. Of the twenty-three millions received in 1787, seven were from the West Indies, six from Turkey, and ten from the Spanish, Dutch, and Portuguese colonies of South America. None was received from the United States or Egypt, which are now the principal sources of supply. The first imports from the East Indies were in 1798, and from Egypt in 1823. When the demand increased, by the application of machinery to the manufacture, we very soon assumed the first rank in the production and supply of cotton. By the year 1800 the receipts from our country equalled those of any other, and in some of the years before the war of 1812 we surpassed all other countries taken together. After the war of 1812 we immediately resumed the chief place as producers for the European market. In the five years from 1816 to 1820 the average weekly consumption in Great Britain of the different kinds of cotton was 3,800 bales of American, 2,200 from Brazil, 1,100 from the East Indies, and 700 from the West Indies; and as our bags were the heaviest, the 3,800 American were more than the 4,000 from other countries. In the next five years Egyptian made its appearance in the market, and the average was 6,400 bales of American, 2,600 from Brazil, 200 from Egypt, 1,000 from India, and 600 from the West Indies. The decline of the West Indies, which was the only cotton similar to ours, had already begun, and from 1826 to 1830 the decline continued. The average consumption of American was 9,200 bales, 2,400 from Brazil, 700 from Egypt, 700 from India, and only 400 from the West Indies, so that ours was more than two-thirds of the whole. In the next five years the American rose to 13,000, the West Indies declined to 200, and the others had but a slight increase; ours being three-fourths of the whole. From this time forward the United States supplied about eighty per cent. of the whole consumption of England, and also of the rest of Europe. In the last year (1859) the number of bales consumed in Great Britain and on the continent was 700,000, of which the American was eighty per cent., the West Indian one, the Brazilian three, the Egyptian four, and the East Indian twelve. And this ratio has been nearly the same for the last twenty years. The ratio of the supply from Egypt has increased a little faster than from America; while that from the West Indies has almost disappeared. Since the rise in the price of coffee, on account of the stoppage of the slave trade in Brazil, her exports have been stationary or declining. The imports from the East Indies have increased, but their comparative gain on American has been very small. In the eight years from 1840 to 1847, the average importation into England of American cotton was 468,000,000 pounds, and of East Indian 75,000,000; while for the next eight years, from 1848 to 1855, the former averaged 644,000,000 and the latter 115,000,000. The first ratio was 16 and the last 18. Since 1855 the ratio has slightly increased. For the last two years it has declined.

The supplies furnished by the several countries are not, however, rivals of each other. Our sea island is the finest and dearest. The Egyptian and Brazilian are next, and are used for the finer fabrics. Ours is suited for all the common yarns, uniting strength of fibre with smoothness and length of staple. The Indian comes last in price, is coarse, short stapled, and badly cleaned. It is mixed with American in the factories, and used for the coarser goods.

Thus there is little or no competition between the different cottons. They are each used for their particular class of manufactures. The Indian would be of little use without ours to mix with it, so that an increase in the supply would require an in-

crease of American to be worked with it. The dearness of the Egyptian and South American, which are about fifty per cent. higher than ours, prevents them from being substituted in its place.

In a paper read before the Society of Arts, J. B. Smith, Esq., member for Stockport, says:—

"It will be seen, therefore, that while we require for the purposes of our manufacture a limited quantity of the sea island and short-staple qualities of raw cotton, we need and can consume an almost unlimited supply of the medium-staple, or United States quality. In this fact lies our real difficulty; for while several quarters of the world supply the first sort, and India could supply enormous quantities of the short-staple sort, the United States of America alone have hitherto produced the second and most necessary kind."

"The finest long cotton in the world is called the 'sea island.' It is grown on the low-lying lands and small islands on the coast of Georgia. The quantity is small, and the price very high. It is used mostly for muslin thread, and the very finest numbers of yarn—say 100's and upward; and price, in fact, is of little moment to the manufacturers who purchase it. It usually sells at about two shillings per pound. A quality much resembling it, and almost, if not quite as good, has been grown, as a sample article, in Australia. But of this denomination of cotton the consumption is very small. Another species—long, strong, fine, and yellowish—is grown in Egypt, and imported in considerable quantities. An inferior quality—coarse, harsh, bright in color, but strong—is imported from Brazil, and a very small quantity from the West Indies. Doubtless, if the price were adequate, and the demand here very great and steady, the supply from many of these quarters might be largely augmented. But it is not of this sort that we need any considerable increase, nor could we afford the price which probably alone would remunerate the grower.

"2. Our great consumption and demand is for the soft, white, silky, moderately long cotton of America—the quality usually called 'uplands,' 'bowed Georgia,' and 'New Orleans.' This used to be sold at prices varying from 3d. to 6d. per pound (it is now from 6d. to 8d.). It can be consumed in any quantity; for it is available not only for weft, but for warp, except for the finer numbers. We need and consume nine bags of this cotton for one bag of all others put together.

"3. It is the insufficient supply, or the higher price of this cotton, that has driven our manufacturers upon the short-stapled native article of India, commonly called Surat. If the price of the two were equal, scarcely a bag of Surat would be employed. When the price of American cotton rises, owing to an inadequate supply, that of East India cotton follows it at a considerable interval—the usual ratio being two to three—and the import of the latter is greatly stimulated. It is always grown in India in large quantities, and, with improved means of communication and more careful preparation, might be supplied in time, in indefinite and probably ample quantities. But it is its quality that is in fault; and, as far as the past is a guide, it would seem incurably in fault. Many attempts to amend the character of this cotton have been made. American planters and American 'saw gins' have been sent over, and American seed has been planted; and the result has been a sensible amelioration in cleanliness and color, and some slight increase in length of fibre, but scarcely any change in specific character. The dry, fuzzy, woolly characteristics remain. Sometimes the first year's samples nearly resemble the American article, but the resemblance never becomes permanent. Hitherto (we believe we are correct in stating), either from the peculiarity of the soil or of the climate, or, as some say, from adulteration by the airborne pollen of the inferior native plant, the improved and altered character of the cotton has never been kept up."

"The point we have to bear in mind, then, is this: our desideratum is not simply more cotton, but more cotton of the same character and price as that now imported from the States. If India were to send us two millions of bales of Surat cotton per annum, the desideratum would not be supplied, and our perilous problem would still be unsolved. We should be almost as dependent on America as ever."

These observations of a practical manufacturer bring out conclusively this truth, that for the uses to which our cotton is applied we are without competition. The long-stapled is too dear, and the short too coarse, fuzzy, weak, and rough to be substituted for ours.

It thus appears that we have a monopoly

of the European market, because we furnish a cheaper and better article for the same price. And this excellence is due to our soil and climate, and to the cheapness of the labor by which cotton is cultivated.

The soil is everywhere favorable for cotton in our southern states. Where it is rich enough to produce any thing it will produce cotton. The climate is our main peculiarity. Although we are so near the equator that we have six months of the summer, and sometimes more, without a frost that will kill so tender a plant as cotton, we have in all that time a succession of rain, and sunshine, and dews, and clouds, such as belong to temperate latitudes. The weather is hot enough for cotton, and yet rainy and showery, so as to keep the growth of the plant vigorous, and bring to perfection a succession of fruit on the stalks from July to November. The first pickings begin as early as July at some places, everywhere in August, and during the whole of September and October new blossoms are appearing, new bolls forming, and new pods opening their silky product for the hands of the cultivator. Even after the frost has stopped the growth of the plant and stripped it of its leaves, the bolls still open, and the fields are whitened with a succession of fruit, until January arrives and warns the planter to prepare for another crop.

This succession of rain and sunshine does not occur in India, which, after the United States, produces the principal part of the European supplies. And this is the reason that the American variety of the cotton plant will not grow there, or soon degenerates to the coarse, rough, short-stapled article which is native to the country.

Another advantage we have over India is the length and cost of the voyage. It is worth two and a half or three cents a pound to transport cotton from our sea-ports to Liverpool. The distance from India to England being twice as great, and the voyage more than twice as long, freights and other expenses must increase in a like ratio; and as the best qualities of Bombay and Surat are worth, even now, when prices are high in England, only eight or nine cents, it is evident that almost nothing is left for the interior producer, especially for the inferior qualities. We can produce cotton with profit at much lower rates than we now name. A decline to the Indian planter is ruinous, because freights are stationary, and all, or nearly all the proceeds in England will be consumed in the transportation.

Probably, however, the greatest advantage we have over the Indian producers is in the cheapness of our labor. It is true that wages are very low in India, but the labor is also inefficient. We have the cheapest and most efficient labor in the world.

The African slave in the southern states is well fed with good and substantial food, that gives him strength, endurance, and health. He is well clad in winter, and well lodged, to protect him from the inclemencies of the season. He is cheerful, able to work, and he works faithfully. As the whole cost of this labor to the state is made up of the simplest necessaries of life, the support of the young, and the old, and the feeble, it is evident that the south has the cheapest labor that is possible. It was the doctrine of Malthus, that in every country there is a constant tendency to reduce the wages of labor down to the mere support of the laborer. That limit, however approximated to elsewhere, has never been reached but in the south.

The slave is supplied with all he wants of meal, and with as much meat as is needed for his health and strength. This meal is prepared in many ways, and makes a most palatable bread. His master generally feeds on it in preference to flour. He has a garden, where he can raise potatoes, cabbages, collards, greens, turnips, beans, and such other vegetables as the taste and industry of the family may desire. He has clothing—cheap, it is true, but warm and substantial.

There is a separate dwelling for each family, and an unlimited supply of fuel for the winter. The old, who are unable to labor in the field, find some slight work about the house—the men in the garden, the women in the care of young children whose mothers are out on the usual plantation work. The sick are carefully attended to by regular physicians and good nursing.

All this is essential to the health and strength of the laborer, and to his efficiency on the plantation. The humanity and sympathy of the master, who has often been reared by some of his slaves, are sufficient to secure their comfort; but if these should be wanting, there is an inexorable law securing the necessary wants of the servant. With less meat, or with insufficient food, the slave is unfitted for regular work. With less clothing, he is liable to sickness and

disease. Without attention and nursing in sickness, his life is endangered, and his services lost to his master. These demands, united with the influences of humanity and sympathy, secure him the necessaries and some of the comforts of life.

Another element of the cheapness of this labor is that nothing is wasted in vicious indulgences. In other countries, a large part of the wages of labor is expended in strong drink; but the most stringent laws are everywhere passed against selling spirits to slaves; the Maine liquor law is enforced with the most severe penalties, and with the utmost certainty of conviction for the guilty.

Much time is lost in free countries in holidays and shows; in idleness and neglect of work; in seeking employment; in change from one place to another; but all this is saved in the south, for there are no idle hands about the plantation, and, excepting the week between Christmas and New Year's day, when there is a general holiday, there is no lost time, except from sickness, in any part of the year.

The children are all put at work at eleven or twelve years of age, as soon as they are able to guide a plough or pick cotton in the fields. The women and men are both efficient workers, and the division of labor is so complete that the children of many mothers are watched over and cared for by one, and the cooking for many families attended to by a single cook.

This system of labor is thus the cheapest possible. The corn and the meat being, in most cases, raised on the plantation, and not burdened with the cost of transportation, are supplied at the cheapest prices; the work is all light and easy, so that women and boys, as well as men, can engage in it efficiently. Every thing is arranged so that labor is secured at the lowest possible rate.

Some philanthropists, indeed, object to the system on this account: that the slave obtains no wages. But he has food and clothing, a house and fire, proper attention when sick, and support in old age. His children are taken care of, and every necessary want supplied. For an idle and improvident race like the negro, these are more than wages. They are more than his industry would secure. He would not earn as much for himself were he free, as he now receives from his master; and these earnings would be wasted in drink, or in excessive indulgences, or in dress, or in luxuries, leaving for himself and his family times of want and suffering, with nothing laid up for sickness and old age. Now he is industrious and temperate, and receives the necessaries of life in return; then he would be lazy, and wasteful, and destitute. As industry and temperance are great virtues, and the necessaries of life at all seasons and times, in sickness and health, in youth and old age are a great boon to the laboring poor; and as want, and suffering, and neglect when sick or aged are great and real evils, philanthropy surely wastes its sympathy on the slave when it complains that he is denied his wages.

The culture of cotton is specially suited for slave labor, because of its giving full employment for the whole year. January is devoted to fitting up the fences, clearing off the decayed trees that have fallen in the fields, and putting in order the cultivators and all the implements of the farm. The ploughs are also started, and some of the ground broken up for spring planting. February is the main time for ploughing, and in the more southern part of the cotton country, corn is planted in this month. In latitude 31° the time for corn is the 20th of February; above this line it gradually becomes later. About a month after the corn, cotton is planted. In every locality it is desired to have the cotton up as soon as the fear of frost is gone. The season for planting begins as early as the 15th of March in the most southern latitudes, is delayed to the 1st of April at the parallel of 32°, to the 15th in latitude 34°, and later still above this line. As the seed are planted close together in drills, the hands pass along the rows and chop down the weakest and smallest plants, leaving them in bunches, fifteen to twenty inches apart. The ploughs follow or precede the hoes, both being necessary to kill the grass and soften the ground about the plants. The hoes follow again, and thin out the branches to one or two stalks, and finally they are reduced to one, the rest having perished from the cutworm or insects, or the blows of the plough and the hoe. For two or three months this hoeing and ploughing, to soften the ground and destroy the grass, gives full employment to the hands. The corn has also to be treated in the same way, and the work is continued on both until the summer has come and the fruit begins to appear on the cotton. There is a little leisure now to the hands before the picking is begun, and this gives time to harvest the wheat that has been sown; to cut

the oats, and gather the fodder from the corn. This work fills up the time until the picking begins. At first, but few of the pods are open. The hands pass between the rows —which are from three to four feet wide on the poor lands, and from six to seven on the richest—and as the branches stretch out so as to reach each other, they each gather from two rows as they pass through the field. By September the fields are white with the opening cotton, and every hand, young and old, male and female, that can be of any service, is busied in gathering the cotton, lest the rain should come and beat it out, and scatter it on the ground. In October this picking continues undiminished. At the close of this month, frost usually appears, and stops the growth of the plant and kills the leaves, but the pods keep opening, and new cotton offering itself to the hands until December. The fields are picked over twice or three times if the season is favorable and the crop large, and five or six times if the opening cotton does not hurry the planter. The gathered cotton has now to be sunned, and dried, and ginned, and packed, and delivered at the nearest railway station or river landing, or sold in the neighboring town. Thus is the year completed with unremitting toil, from Christmas to Christmas.

The distribution of labor between the white and black races, so that the former shall have the selection of the products and of the place of labor, of the seeds and the mode of cultivation, and of all the plans and management of the plantation, is another great aid to the cheapness and the efficiency of the labor.

Some political economists have supposed that free is cheaper than slave labor; but though there are pursuits where the watchfulness, foresight, intelligence, and energy of a free man will make his labor so much more productive than that of a slave as to pay the superior cost of his support, it is certain that the want of these qualities in the slave is but a slight drawback to the value of his labor in the production of cotton. The work is so regular, and simple, and easy, that the free man performs it no better than the slave, and as the direction, and management, and skill are in the master, the work is well directed, and wisely managed. The slave works enough, though he does not work as hard as some free men. In fact, it is very doubtful if a free white man, impelled by necessity or the desire of accumulation, would be more efficient in the cotton field than the slave. Certain it is that in the south, where the hot sun breeds disease, and the malarious air brings fevers, the white freeman could not produce as much as the slave, much less could he labor as cheaply. His expenditures being more, his wife and children not working at all, or but little, his waste of time and money in vicious practices and holidays, would require larger wages, and for these he has nothing more to give than the slave.

The slaves marry and are given in marriage as regularly and religiously as the white peasants of any country; and, though the marriage has not a legal sanction, it has the religious and moral. They are kept together with their families far more than the white people. On many plantations there are one or two hundred negroes, all descended from three or four families; while the children of the first master have been scattered from Maine to Texas. They have regularly improved since first introduced from Africa, and are now improving, from year to year, in intelligence, in moral culture, in intellectual development, in appearance, in habits, in comfort; and they are as cheerful and faithful, as devoted to the interests of their master, as attached to him and his family, as if they were free hired servants, receiving regular wages. There is no mendicity, no need for poor-houses, asylums, hospitals; for the master's house is the asylum of the slaves; his wife and his daughters their nurses, and his own doctor their physician. Such a set of laborers, able and willing to work, contented and happy, with every want supplied, and yet costing the master the least possible sum needed for their health and their strength, furnish the cheapest and most efficient labor possible.

As the south sends nothing to the north that can be produced there, there is no conflict between the labor of the north and the south. There is no competition, no tendency to equalization in wages, no interference the one with the other. They are, in fact, mutual helps to each other, as town and country, as man and wife, as the limbs, and the head, and the heart of the human body. The high wages at the north cannot be reduced by the wages of the slave. Instead of reduction, it causes an increase. His cheap toil is for their advantage. His labors, under the hot tropical sun, are for the benefit of

every mechanic, and artisan, and workman, that now fears the competition of the northern free black. As a slave he benefits them, as a free man he would be in their way.

We have one more point to mention to complete the explanation we suggest of our high prices, and this is the operation of the tariff. By a tax at the sea-ports on any article imported, its price is so raised that the American producer of the same kind of goods is enabled to raise his price. This advance enables him to pay higher rates to his workmen, and to the capitalist, and to all concerned in the manufacture. But it prevents, also, the exportation of his goods, because they are too high for the foreign market. Being thus unable to pay for the supplies he must have from abroad, the cotton planter comes to his aid with a product much wanted abroad, and raised here under favorable circumstances of soil and climate, and with a cheap kind of labor that does not compete with the labor of the manufacturer. This will pay for the foreign supplies of both, and the planter buys them, and takes in return the high-priced manufactures. Thus high prices are sustained, at the expense, indeed, of the planter, but to the great advantage and prosperity of the north and the west.

We have now considered the several points of the explanation we proposed for our high prices, that in cotton we have an article of great profit to the planters, produced by cheap labor, although the other labor of the country is dear; in large and intense demand in Europe and all parts of the world, because it furnishes the cheapest material for clothing, for the production of which there is no competitor with us, as we have almost a monopoly of the market; and that by means of this export we pay for our foreign supplies, and by our tariff raise the price of the imports to our own high limit, and thus sustain the rates of labor and capital, and secure the prosperity of our country.

High prices for labor on iron, on cotton and woollen manufactures, and on all the articles we import from abroad, we could not have without a tariff; this tariff could not be maintained without an export of some product, furnished by nature or made with cheap labor, in intense demand abroad; for otherwise it would be impossible to pay for our imports. Cotton furnishes the desired article, and thus makes prices high both for labor and money, since the rates for the one and the other closely correspond at all times and in all countries.

Precisely the same set of operations has been going on in California for the past ten years. Nature there, as here, furnishes a product which pays well to those who obtain it; the gift of nature there being in the mines, and here in the soil and climate. The miner there and the cultivator here are well paid for their labor. Both productions are in intense demand abroad; and both unite in enabling us to pay for our foreign importations, without reducing to the foreign limit the wages of labor and the interest of capital that supply these products.

It may, perhaps, be proper to confirm the propositions we have been considering by inquiring into the course of our domestic trade. If the true explanation has been given of the anomaly of high prices prevailing in a country engaged in a large commerce with the rest of the world, we will find large transfers to the south of manufactures from the north, and of agricultural products from the west; because cotton being very profitable to the planter, and nearly all the labor of the south being appropriated to this culture, the northern manufacturer will supply all his wants of every kind in which labor is the chief element, and the western farmer will supply him with all those articles of food that are of easy transportation. In fact, we find in the south that any article of necessity, comfort, or luxury comes from the north. If we enter the dwellings, or the shops, or the stores of the cotton states, they tell all the same story—every thing comes from the north.

As I rose from my bed this morning and surveyed the furniture of my chamber, I found nothing made at home. The bedstead, netting, and canopy; the coverlet, sheets, and ticking; the bureau, wardrobe, washstand, and crib; the tables, chairs, mirrors, curtains, carpet, bell-wire, and tassel; the medicine chest, and all its bottles, and mixtures, and quack preparations; all the perfumery, and cosmetics, and jewelry; and brushes, and powders; every article of dress, or clothing, or ornament; even the whitewash on the walls, and the paint on the wood-work, and the glass in the windows were from the north. As I came from the chamber to the library, I found no change. The book-case, curtains, carpet, pictures, tables, sofas, paper, ink-stand, pen, and ink were from the north. There was a northern

grate for northern coal; a marble mantel from the north, with vases and photographs; globe and statuary from the same source. I opened the book-cases, and run my eye over the shelves, to see if any could be found with a southern imprimatur; but though some had on them the names of southern authors, it was a long while before I found a southern publishing house. There was "Beulah," but it had not Mobile on its title-page; Dr. Thornwell's "Truth," but it was not published in Columbia; the "Laws of Georgia," but they were printed in New York; "Cobb on Slavery," but it claimed to be from Philadelphia; Stevens' "History of Georgia," but it came from Appleton's, on Broadway; "White's Statistics" had Savannah on its title-page, but I suspected this was a counterfeit stamp, and that it had not been printed in the south; Judge O'Neall's "Historical Sketches of Carolina" claimed to be from Charleston, and this was the first genuine southern print I found in my library. A more diligent search discovered others, but they were few and far between. As I went to the breakfast-room, the exclusion of the south was not so complete. The side-board, and its glass and silver were from the north, but it had on it a handsome pitcher from our own kaolin; the window-shades, clock, tables, chairs, and crumb-cloth were from the same source; but there was a lounge manufactured here. Albert gave me my coffee in a northern cup, on a northern waiter, sweetened with Stuart's sugar, but the cream was from home; Ziney brought in hot waffles on a northern plate, but the corn, and flour, and eggs of which they were made were produced here; the water was handed in a northern tumbler, and cooled with Boston ice, but the water-cooler had on it a domestic stamp; the butter was southern, though hardened in a New England refrigerator; the cantelopes were raised here, though the salt and pepper which seasoned them were not; the hot biscuits were from southern flour, but the yeast-powders with which they were raised were from New York; the beef-steak was from our own market, but the tongue had been brought a thousand miles from home; the clabber was fresh from our own dairy, but the cheese was from New Jersey; the white, hot, smoking hominy was a domestic product, but the dish in which it was served was not; the bread was from our town bakery, but the ham was from Cincinnati; the knives, and forks, and spoons, and castor, and vinegar, and oil, and mustard were from the north, but the catsup was made here; the fish were from Savannah, but they had been brought up by a northern locomotive, running on English rails; the walls and doors were covered with paint manufactured at the north, but the floor was of Georgia pine; the locks, and keys, and andirons, and shovel, and tongs, and hearth-broom, and rug, and oil-cloth, and table-linen, and napkins were not made here, but the morning newspaper was printed on paper made at home, out of southern rags, and by southern labor.

After breakfast Albert drove me down town in a northern buggy, behind a northern horse, with northern harness, and reins, and whip. I stopped at a furniture shop, and asked how much of their stock was made here; and they said about fifty dollars in a thousand, the southern work being principally of pine; I asked at a book store the same question, and they told me, including law books and the reports of our supreme court, perhaps one dollar in a hundred; I asked at a tin shop, and they said their stoves, and gas fixtures, and lamps, and japanned work, and block tin were from the north, but that their tin ware was made in their own shop, though out of English plate and with northern solder; I enquired at a shoe shop, and they told me they had several hands employed on customers' work, but the great proportion of their sales were from Boston; I stopped at the paper warehouse, and was sure now that I had found a shop with home-made products, but they told me they only manufactured wrapping paper, and supplied the newspaper offices, but their card, and post, and letter paper was from the north; I drove to the cotton mills, and here found a genuine home manufacture, but their machinery, and looms, and spools, and oil were from the same northern hive, whose products swarm over every part of our country.

The south are an agricultural people, devoted to the production of cotton, because it is more profitable than any other employment, and they are able and willing to buy their supplies from the north, because it is their interest to do so. Their labor is employed according to the irresistible laws of trade in the most remunerating pursuit, and they can afford to buy the manufactures they want, because they can be furnished cheaper than they can make them. They might tan their own leather, make their

own shoes, weave their own cottons and woollens, put together their own clothing, brew their own ale, distil their own grain, press their own wine, reduce, cast, and refine their iron, mine their coal, build their carriages, print their books, polish their marble, and manufacture their own furniture, and china, and hardware, and carpets, and clothing; but they find it their interest to buy them, and appropriate their labor to the growing of cotton, and the raising of those heavy agricultural products that cannot be brought here cheaply, and the manufacture of the coarser and cheaper goods on which the cost of transportation is large.

This review of the consumption at the south of northern manufactures and products is a confirmation of the proposition that the north buys our cotton with her manufactures, that she may purchase with it her foreign supplies.

That she sells these articles at high prices is also alike evident. She sends us her prints, and they are sold in our market in competition with English, on which the foreign manufacturer has paid twenty-four per cent. duty, although she has the raw material at lower prices than the English. Every article of merchandise that she sends us is protected by a duty, by the cost of transportation over the sea, by interest and insurance on the long voyage, and all are sold in competition with foreign articles of the same kind, thus sustaining her prices and *ministering* to her prosperity.

Not only does New England purchase her own foreign supplies with the cotton she buys of us with her manufactures, but also those of the west, to whom she sells them for grain and flour to feed her towns and her factories. The western states, indeed, send to the south corn, and bacon, and flour, and bagging, but they buy in return sugar, and rice, and cotton, and these more than pay them for the sales to the south. Their coffee, and tea, and silks, and linens are purchased with the corn and wheat they send to New York and Boston. These supplies of food are consumed in New England, and the foreign goods sent to the west to pay for them are bought with cotton obtained for their manufactures.

We have now completed our explanation of the high price of labor and capital in our country. It consists in the production, by cheap negro labor, aided by a favorable soil and climate, of a product of prime necessity abroad, for which the demand is large, and the supply, from every other country except ours, small and unimportant. This enables us to pay for the foreign articles we need. We then lay a duty on imported manufactures, which raises their price, and permits the American laborers and artisans to obtain high rates for their products. High prices for labor beget high prices for money, which aids and facilitates labor. And in this way cotton and slave-labor become the source and cause of the high rates both for labor and money, and the foundation of our country's prosperity and greatness. This effect of cotton is aided by tobacco and rice, and by the gold of California. To these principal causes the cheap lands of the west, and the forests of Maine and of the south furnish a small addition, but almost too small to be appreciated, except in years of very great abundance here, or of famine abroad. But this influence is very slight, and, of the others, cotton is by far the most important.

GATHERING THE CANE.

And now may be seen the field-hands, armed with huge knives, entering the harvest field. The cane is in the perfection of its beauty, and snaps and rattles its wiry-textured leaves as if they were ribbons, and towers over the head of the overseer as he rides between the rows on his good-sized horse. Suddenly, you perceive an unusual motion among the foliage—a crackling noise, a blow—and the long rows of growing vegetation are broken, and every moment it disappears under the operation of the knife. The cane is stripped by the negroes of its leaves, decapitated of its unripe joints, and cut off from the root with a rapidity of execution that is almost marvellous. The stalks lie scattered along on the ground, soon to be gathered up and placed in the cane-wagons, which with their four gigantic mule-teams have just come rattling on to the scene of action with a noise and manner that would do honor to a park of flying artillery.

We have already alluded to the fact that the sugar crop has to be gathered in Louisiana within ninety days, or else it will be destroyed by the cold; as a consequence, from the moment the first blow is struck, every thing is inspired with energy. The teams, the negroes, the vegetation, the very air, in fact, that has been for months dragging out a quiescent existence, as if the only object of life was to consume time, now start as if touched by fire. The negro becomes supple, the mules throw up their heads and paw the earth with impatience, the sluggish air frolics in swift currents and threatening storms, while the once silent sugar house is open, windows and doors. The carrier shed is full of children and women, the tall chimneys are belching out smoke, and the huge engine, as if waking from a benumbing nap, has stretched out its long arms, given one long-drawn respiration, and is alive.—*Harper's Magazine.*

PICKING COTTON.

The season of cotton picking commences in the latter part of July, and continues without intermission to the Christmas holidays. The work is not heavy, but becomes tedious from its sameness. The field hands are each supplied with a basket and bag. The basket is left at the head of the "cotton-rows;" the bag is suspended from the "picker's" neck by a strap, and is used to hold the cotton as it is taken from the boll. When the bag is filled it is emptied into the basket, and this routine is continued through the day. Each hand picks from two hundred and fifty to three hundred pounds of "seed cotton" each day, though some negroes of extraordinary ability go beyond this amount.

If the weather be very fine, the cotton is carried from the field direct to the packing-house; but generally it is first spread out on scaffolds, where it is left to dry, and picked clean of any "trash" that may be perceived mixed up with the cotton. Among the most characteristic scenes of plantation life is the returning of the hands at nightfall from the field, with their well-filled baskets of cotton upon their heads. Falling unconsciously "into line," the stoutest leading the way, they move along in the dim twilight of a winter day, with the quietness of spirits rather than human beings.—*Harper's Magazine.*

SUGAR—CULTIVATION AND CONSUMPTION.

THE cultivation of cane sugar in the United States has become of considerable importance only in the last ten years. While it has in that time occupied an increasing proportion of the attention of the planters of Texas and Louisiana, it has rather declined in other portions of the Southern states. The cane itself is more nearly associated with Indian corn in the general character of its climatic requirements than any other staple. It differs from corn in this respect only in degree, each condition, or the principal condition of temperature, at least, being required in similar, but greater tropical excess for the period of its growth. In the southern parts of the United States the great heat of summer gives this plant a range it attains in no other country of the same mean annual temperature; and it is restrained only by the limit of its safe endurance of the winter. The cane may be cultivated east of the high plains and deserts of Texas, and south of 34° north latitude. The area now occupied by the cane is quite limited, a part of Texas, the lower parishes of Louisiana, a portion of Florida, in the latitude of Tallahassee to Cedar Keys, and the Atlantic coast of Georgia, comprising its extent. The considerable capital required to conduct the culture makes it a larger interest than might be inferred from this limited extent of area.

The cane was first introduced into Louisiana in 1751, and the first plantation was established by Mr. Dubreul in 1758, a little more than a century since. The progress was not rapid, however, until 1794, when the revolution of St. Domingo drove some few Frenchmen to fly for refuge from their burning houses and their frantic pursuers on board American vessels, with such of their faithful slaves as would follow them. When there, they naturally turned their hopes to Louisiana, where they might find a home for themselves and their servants among kindred French. To these unhappy men Louisiana owes the introduction of the Creole cane, a small yellow kind, which only was then grown in the French islands. About the same period the cane culture was introduced into Georgia. There had been there growing and flourishing from the time of the first settlement of the country by General Oglethorpe, luxurious orange trees. As similar trees in Louisiana had been destroyed by the frost, while those in Georgia flourished uninjured, the idea was suggested to an enterprising planter that if under such circumstances cane would grow in Louisiana it would also grow in Georgia. In 1805 he procured 100 plants of the Otaheite cane that had been sent by Lieutenant Bligh from Otaheite. These 100 canes multiplied to 2000, and from these most of the plantations in Georgia and Florida were propagated. The question of labor in the English West Indies was then sufficiently discussed to induce many planters to leave Jamaica for new settlements, and many were attracted to Georgia by the luxuriant growth of the cane. The price of sugar was then, under the embargo, about ten cents per pound, and many plantations were established. The canes spread up the Altamaha, the Oconee, and the Ocmulgee, and luxuriated in the fine lands of Florida and Georgia to a distance of 150 miles from sea. Nevertheless, the manufacture was not many years after mostly abandoned in that region on a large scale or for export, but it is still conducted to a considerable extent for plantation and home use. It did not there pay so well as rice or cotton, since the product per acre was less than half what it had risen to be in Louisiana. In the rich lands of that state and Texas the product per acre is 2400 pounds against 1000 pounds even in the richest river lands of Georgia.

There are five kinds of cane in use by the planters of Louisiana, viz., the *Bourbon*, which has large eyes, a dark purple color, and is very hardy; the *green ribbon* is of a bright yellow color, with delicate green stripes; the

eye is small, elongated, and delicate in its structure; the *red ribbon* has purple stripes of an inch or less in width, and can resist light frost; the *Otaheite* has large joints, does not grow high, and has a comparatively thin skin, and is easily affected by the frost, yet its juice is rich and abundant; the *Creolé cane* yields a superior kind of sugar, but it has been less used than the Bourbon on account of its less hardy nature. It is now getting more into favor again. These are the varieties mostly used in Louisiana. The mode of culture is simple and allied to that of Indian corn. The canes are propagated by cuttings, and these are planted in the fall, seldom as early as October, since the planters have no time until the grinding season is over. The riper portion of the stalk is generally used for cane seed; others cut the cane in the middle and use the green tops for planting. The land is well ploughed, harrowed, and marked off in rows three to five and even eight feet apart. As the cane must reach its full growth in nine months, a good distance apart is thought necessary to promote access of the sun and the circulation of air. A double-mould-board plough follows the marker, opening a clear furrow for planting. In the furrow the canes are laid straight in such a manner that the eyes may freely throw out their shoots. They are covered from four to six inches. The young plants are cultivated much as Indian corn, in rows. The planting is done in some parts of Louisiana once in three years. The first year it is called "plant cane," and the subsequent growths are called rattoons. But sometimes, as on the prairies of Attakapas and Opelousas and the higher northern range of its cultivation, it requires to be replanted every year. Within the tropics, as in the West Indies and elsewhere, the rattoons frequently continue to yield abundantly for twelve, fifteen, and even twenty-four years from the same roots. In Louisiana in the fourth year the land is put in corn and peas. After the corn is gathered the stalks and peas are ploughed in, and the land is ready for cane again.

In Louisiana the cane never ripens, and therefore is allowed to grow as long as it can be done with safety from frost. In the latter part of October, they commence by saving their seed, that is, by cutting the cane they need for planting, and securing it by placing it in mats, so called, on the ground, say twenty feet by forty, resting it on an embankment, with the buts on the ground at an angle of about twenty degrees, and leaving a mass of tops on the surface, a foot deep and forming a perfect protection from frost.

Next they commence taking off the crops. Every negro has at all times in his possession a cane knife, like a butcher's cleaver, and kept very sharp. With the back of the knife he knocks off the dry leaves, and cuts off the stalk as of no value where the leaves are green. Should a frost come whilst they are making sugar, the work is stopped, and all hands are employed winnowing the cane in the fields, as a fermentation commences immediately, if it is allowed to stand.

The cane is as certain as any large crop we have. When the cane is gathered it is prepared for the mill. These are some twelve feet from the ground, in order that the juice may flow from the rollers into the juice boxes, and from them into the kettles. The mills are composed of three iron rollers from twenty-five to twenty-eight inches in diameter, and from four to five and a half feet long. There are a great number of inventions that have been patented within a few years. The cane carrier is an endless belt, fifty to ninety feet long, formed of chains, with slats inserted and placed at an angle of thirty to thirty-five degrees to the ground. The lower end is about two feet from the ground. On this the canes are spread evenly, and by its revolution they are carried up to the rollers which express their juice as they pass through. The juice thus obtained is collected in large reservoirs, to go through a process of boiling which has been greatly varied by improvements upon the old Creole plan. The juice, by boiling and evaporation, is reduced to the state of muscovado, which is placed in hogsheads with holes bored in the bottom, to permit the molasses to pass off. In the course of the boiling, lime is added in prepared portions to "defecate" the sugar, and the juice is bleached by passing through a filter of bone-black. Very many inventions have been patented for kettles, vacuum pans, etc., to facilitate the boiling process, and others to promote the discharge of the molasses. One of these is by centrifugal force. The sugar is placed in a cylinder of iron network, which, revolving with great rapidity, imparts to the molasses a centrifugal motion that drains it from the sugar through the net, when it is collected in proper vessels.

The introduction of bisulphate of lime of late years has added greatly to the quantity of sugar that may be obtained from a given quantity of cane, and also to its quality.

The quantity of sugar produced on an acre varies from 500 lbs. to 3000 lbs.; the average may be 1000 lbs. A well-cultivated plantation in Louisiana produces 2400 lbs. sugar and 2000 lbs. or 160 gallons molasses per acre. Some mills will turn out 1000 gallons juice per hour, twenty hours in a day, giving ten hogsheads of sugar, or 12,000 lbs. and 20 bbls. molasses, or 800 gallons, 12 lbs. to the gallon. The expenses and products of a plantation in Louisiana have been given as follows in official documents:—

Household expenses		$1000
Overseer's salary		400
Food and clothing—15 working hands at $30		450
" " 15 old hands and children, $15		225
Repairs, 1½ per cent. on capital ($40,000)		600
		$2675
50 hhds. sugar at 4 cents per lb	$2000	
25 " " " 3 " "	750	
25 " " " 2 " "	500	
4000 galls. molasses, 10 cents	400	3650
Balance		$975

There are many other products raised by the hands besides sugar. Thus there are in Louisiana 200,000 hands, and these produced in 1859, 362,296 hhds. of sugar, worth with the molasses $31,399,241; and in addition they raised 6,327,882 bushels of corn, or 31 bushels per head; and 4,911,680 lbs. of rice, or 24½ lbs. per head. There are in Louisiana 1298 sugar houses, 987 worked by steam and 311 by horse power. The hogshead of sugar is a very variable measure, but the average weight, by the best authorities, is 1150 lbs.

With the progress of the country, a great dependence has been had upon Louisiana for a supply of sugar. In 1815, the banks of the Mississippi gave 10,000,000 lbs., and in 1818, 25,000,000 lbs. In 1858, it had risen to 414,796,000 lbs. The census of 1850 gave the quantity of cane sugar raised in the United States as follows:—

	Lbs.
South Carolina	671,000
Georgia	1,642,000
Florida	2,750,000
Alabama	8,242,000
Mississippi	388,000
Kentucky	284,000
Tennessee	248,000
Texas	7,351,000
Louisiana	226,001,000
Total	247,577,000

These figures show that already in 1850 the manufacture of cane sugar had concentrated in Louisiana, but had become important in Texas. The production of sugar varies greatly from year to year as affected by the season. In 1853, the product in Louisiana rose to 495,156,000 lbs., in 1856 it fell to 81,373,000 lbs., and in 1858 it had recovered to 414,796,000 lbs. This fluctuation has an important influence upon the exchanges of the country, since when the Louisiana crop fails, the price of sugar rises very high and the importation from abroad becomes excessive. The following table will show the quantity of sugar consumed in the United States, and whence it is derived:—

CONSUMPTION OF SUGAR IN THE UNITED STATES.

Year.	Imported.	Louisiana.	Total in tons.	Lbs. per head.	Cts. per lb.
1801,	21,376	...	..	..	..
1811,	24,791	4,000	28,791	..	..
1821,	26,672	14,000	40,672	6	..
1831,	44,178	35,000	79,178	13⅛	..
1841,	65,601	38,000	103,601	13¼	4½
1842,	69,474	39,200	108,674	13⅝	3½
1843,	28,854	64,360	93,214	12¼	3¼
1844,	83,801	44,400	128,201	15	3¾
1845,	88,336	45,000	133,336	15¼	4½
1846,	44,974	83,028	128,002	14¼	4¼
1847,	98,410	71,040	169,450	18⅛	4¼
1848,	104,214	107,000	211,214	22¼	3¼
1849,	103,121	99,180	202,301	20½	3¼
1850,	160,210	144,600	304,810	29½	3¼
1851,	201,493	120,331	321,824	30	3½
1852,	196,558	118,659	315,217	29	3½
1853,	200,610	172,379	372,989	30½	3½
1854,	150,854	234,444	385,298	34	3
1855,	192,607	185,145	377,752	31½	3½
1856,	255,292	123,468	378,760	33¾	4¼
1857,	241,765	39,000	280,765	23¾	5½
1858,	244,758	143,734	388,492	31	6½
1859,	239,034	192,150	431,184	29½	6¾
1860,	296,950	118,331	415,281	30	7½

The small crop of Louisiana in 1856, induced a rise in prices that brought a large quantity of foreign into the country. The consumption per head seems to have been sustained at the higher prices. The consumption per head is larger than in other countries. The ratio for the same year has been as follows:—France, 9 lbs. per head; Great Britain, 28½ lbs. per head; and in the United States, 31 lbs. per head. This French consumption includes cane and beet-root sugar. The United States figures embrace only the cane. The maple sugar made would, with molasses, swell the total figures for 1860 to 464,673 tons; as thus—cane sugar, 415,281 tons; molasses refined, 60,000 hhds., giving 13,392 tons sugar; of maple sugar 28,000 tons. California consumption, 8000 tons.

The weight of the Louisiana sugar hhds. is taken at 1150 lbs. for the crop of 1860, and the total crop for that year, or that which commenced in 1860, was 228,753 hhds., weighing 263,065,000 lbs. The number of sugar houses worked by steam is 1090, and by horse power 283. The product of molasses is put at 70 gallons per 1000 lbs. of sugar, or a total of 18,414,550 gallons.

MAPLE SUGAR.

It is but a few years since the highest reach of art in this manufacture produced only a fine muscovado-like sugar; but now, by improved processes, specimens are annually exhibited at the fairs vieing with the most beautiful loaf sugar. By the improved mode the sap is boiled in a potash or cauldron kettle to a thick syrup, which is strained when warm. It is then allowed to stand twenty-four hours, and is then poured off. To clarify a quantity of 50 lbs., a mixture of one quart of milk, one ounce of saleratus, and two whites of eggs well mixed is boiled into the sugar until it has become thick. For draining, a tube is employed, fifteen inches square at the top and coming to a point at the bottom. The sugar is put in cold and the bottom tapped, while the top is covered with a wet flannel cloth of two or three thicknesses. The decrease of timber in the older states tends to diminish the make of maple sugar, but when the price of cane is high, as in the few past years, the production of maple is far more active to supply the demand.

The quantity of maple sugar made per annum cannot be ascertained with as much accuracy as that of the cane, and the estimates of the dealers are founded upon the returns of the census of 1850, which were as follows:

UNITED STATES MAPLE SUGAR PRODUCTION.

	Lbs.
Maine	93,542
New Hampshire	1,298,863
Vermont	6,349,357
Massachusetts	795,525
Rhode Island	28
Connecticut	50,796
New York	10,357,464
New Jersey	2,197
Pennsylvania	2,326,525
Maryland	47,740
District of Columbia	..
Virginia	1,227,665
North Carolina	27,932
South Carolina	200
Georgia	50
Alabama	643
Louisiana	255
Arkansas	9,330
Tennessee	158,557
Kentucky	437,405
Missouri	178,910
Illinois	248,204
Indiana	2,924,192
Ohio	4,588,209
Michigan	2,439,784
Wisconsin	690,976
Iowa	78,407
Minnesota	2,950
Total	34,252,436

The want of some mode of ascertaining the make of sugar prevents any approach to an accurate estimate. A great deal is made, as of cane sugar in Georgia, for home use; it does not come upon the market, but prevents, to a certain extent, a demand that would exist without it.

COMMERCE

COMMERCE OF THE UNITED STATES.

CHAPTER I.

COLONIAL TRADE — IMPERIAL RESTRICTIONS—EMANCIPATION OF INHABITANTS.

THE history of the commerce and trade of a people is a record of their industry and productive powers, since all trade is but an interchange of the products of labor, and wealth but an accumulation of those products beyond the necessary annual consumption, and wear and tear from use. In the United States, since the date of their settlement, the development of trade and the accumulation of property have been more rapid than in any other country. This has been the case, chiefly, for five leading reasons: 1. The ample supply of fertile land free to the cultivator. 2. The persevering and intelligent industry of the people, combined with an inventive genius that has constantly smoothed the way of labor by devising the means of producing greater results with the same manual force. 3. The rapid increase of the numbers of the people, not only by reason of the healthiness of the climate and the general morality of their habits, but also in consequence of the great immigration from abroad, induced by the desire of the most enterprising Europeans to avail themselves of the benefits of our institutions. The stream of natural births in excess of deaths has mingled with the broad current of immigration to swell the numbers in a surprising ratio. 4. The accumulation of capital applicable to reproductive industries, as well through the frugal habits of the people, who have consumed far less than they have produced, as by the influx of capital from abroad, not only in the hands of immigrants, but for investments, that will yield larger revenue to European holders than they can there obtain. And, fifth, and perhaps more important than all, the control that the people have kept of their own funds. They have had no absolute rulers or dynasties to involve them in devastating wars, destroying wantonly what was not exhausted in military expenses, and leaving the people deprived of their all. On this continent comparatively nothing has been wasted in strife, while countless sums have been swallowed by Europe in offerings to the god of war. Thus, industrious and frugal habits, abundance of fertile land, morality of character, and freedom of institutions, have combined, with fertility of invention in machinery, and means of communication, to build up a nation that attracts the cream of the European people and their capital—these elements, in fifty years of undisturbed peace, produce an example of the highest national happiness. It is true that some other nations have more aggregate wealth, but that in the United States is more equally divided among the people. These causes have operated to a greater or less extent since the settlement of the country, but with increasing force as the present century has advanced. We may illustrate by a few figures, showing the general state of affairs at three periods, viz.: in 1700, eighty years after the time of first settlement; secondly, the time of separation from the mother country; and thirdly, the date of the census of 1850:—

	Population.	Annual agricultural products.	Manufactures.	Assessed wealth.
1700,	262,000			
1790,	3,929,827	$150,000,000		479,293,263
1850,	23,191,876	1,070,000,000	$1,019,000,000	2,275,730,124
1860,	31,000,000			$9,318,292,265

In nearly two hundred years up to 1790, the population had increased to less than 4,000,000, including the blacks; and the taxable valuation to $479,293,263, including the land. In the succeeding sixty years the population rose sixfold, and the taxable property fivefold. Of that population, over 5,000,000 immigrated into this country. The white population, however, increased by census 16,800,000 persons: of these, 11,600,000 were the native increase in sixty years; hence, nearly 50 per cent. of the increase was from immigration. The great

increase in manufactures, of which none had been allowed under the imperial government, is very remarkable. It indicates only the force with which industry acted as soon as the inhibition of the mother country was removed. The population for 1860 is the current estimate. The valuation is, however, the official state returns, and shows an amazing result—nearly fourfold, in ten years!

The early settlers in all the colonies had to depend mostly upon agricultural products, first for their own maintenance, and then as a means of procuring, by a sale of the surplus, those manufactured articles which, under the rigorous rule of the mother country, they were not allowed to produce themselves. The early policy of the imperial government was to make the colonies a source of profit to the mother country, and this was sought by restraining the colonists from any pursuit that came in conflict with the industry of the mother country, and to confine them to the production of such articles as she stood most in need of. Those articles they were allowed to sell only to the mother country, and were to buy what they stood in need of only of her. Under those general restrictions the colonists, with little capital, and a barren soil at the *north*, were to prosper as they could. Their genius and restless energy, however, stood them in stead. But they were compelled to encounter new restrictions at every turn. The provinces were in some cases grants to individuals, and in others to companies. This involved, of course, their own government. But soon the Crown claimed the right of confirming the governor. They were forbidden to coin money, to sell lands to any but British subjects, to cut down pine-trees on any pretence, to send wool to any place out of the king's dominions, to export any produce except in English vessels, of which the master and three-fourths of the crew were English. Thus every new progress of the colonies, even in settling and working the land, was followed by a new restraint. But when they began to manufacture, new anxieties seized the home government. Early in the eighteenth century an act of parliament forbade the manufacture of hats; and Massachusetts Bay gave offence by undertaking the manufacture of paper. New York incurred displeasure by taxing slaves imported from Africa, five ounces of silver each; and the ire of the government was further aroused by the rebellious disposition that prompted the New England people to work up their own wool and flax into home-spun goods. They also attempted to start banks, which parliament prohibited; and they forbade the manufacture of iron beyond the state of pig, and interdicted foreign-built vessels from the colonial trade. In spite of all these continually multiplying vexations, the colonists contrived to find something to do, and the fact that they did so kept the home government continually upon the "anxious seat." A parliamentary committee was finally appointed to look into the manner in which those colonists employed their time, and the committee of parliament reported as follows:—

"The governor of Massachusetts Bay informed us that in some parts of this province the inhabitants worked up their wool and flax into an ordinary coarse cloth for their own use, but did not export any. That the greatest part of the woollen and linen clothing worn in this province was imported from Great Britain, and sometimes from Ireland; but, considering the excessive price of labor in New England, the merchants could afford what was imported cheaper than what was made in that country. That there were also a few hat-makers in the maritime towns; and that the greater part of the leather used in that country was manufactured among themselves. That there had been for many years some iron works in that province, which had afforded the people iron for some of their necessary occasions; but that the iron imported from Great Britain was esteemed much the best, and wholly used by the shipping. And that the iron works of that province were not able to supply the twentieth part of what was necessary for the use of the country. They had no manufactures in the province of New York that deserved mentioning; their trade consisted chiefly in furs, whalebone, oil, pitch, tar, and provisions. No manufactures in New Jersey that deserve mentioning, their trade being chiefly in provisions shipped from New York and Pennsylvania. The chief trade of Pennsylvania lay in the exportation of provisions and lumber, no manufactures being established, and their clothing and utensils for their houses being all imported from Great Britain. By further advices from New Hampshire, the woollen manufacture appears to have decreased, the common lands, on which the sheep used to feed, being now appropriated, and the people almost wholly clothed with woollen from Great Britain.

The manufacture of flax into linen, some coarser, some finer, daily increased by the great resort of people from Ireland thither, who are well skilled in that business; and the chief trade of this province continued, as for many years past, in the exportation of naval stores, lumber, and fish. By later accounts from Massachusetts Bay, in New England, the assembly have voted a bounty of 30s. for every piece of duck or canvas made in the province. Some other manufactures are carried on there, as brown Hollands for women's wear, which lessens the importation of calicos, and some other sorts of East India goods. They also make some small quantities of cloth made of linen and cotton, for ordinary shirting and sheeting. By a paper-mill set up three years ago, they make to the value of £200 sterling yearly. There are also several forges for making bar-iron, and some furnaces for cast-iron or hollow ware, and one sitting-mill, and a manufactory of nails. The governor writes concerning the woollen manufacture, that the country people, who used formerly to make most of their clothing out of their own wool, do not now make a third part of what they wear, but are mostly clothed with British manufactures. The same governor (Belcher), by some of his letters of an older date, in answer to our annual queries, writes, that there are some few copper mines in this province, but so far distant from water-carriage, and the ore so poor, that it is not worth the digging. The surveyor-general of his Majesty's woods writes, that they have in New England six furnaces and nineteen forges for making iron, and that in this province many ships are built for the French and Spaniards in return for rum, molasses, wines, and silks, which they truck there by connivance. Great quantities of hats are made in New England, of which the company of hatters of London have likewise lately complained to us, that great quantities of those hats are exported to Spain, Portugal, and our West India islands. They also make all sorts of iron work for shipping. There are several still-houses and sugar-bakers established in New England. By later advices from New York, there are no manufactures there that can affect those of Great Britain. There is yearly imported into New York a very large quantity of the woollen manufactures of this kingdom for their clothing, which they would be rendered incapable to pay for, and would be reduced to the necessity of making for themselves, if they were prohibited from receiving from the foreign sugar colonies the money, rum, sugar, molasses, cocoa, indigo, cotton, wool, etc., which they at present take in return for provisions, horses, and lumber, the produce of that province and of New Jersey, of which he affirms, the British sugar colonies do not take off above one-half. But the company of hatters of London have since informed us, that hats are manufactured in great quantities in this province. By the last letters from the deputy-governor of Pennsylvania, he does not know of any trade carried on in that province that can be injurious to this kingdom. They do not export any woollen or linen manufactures, all that they make, which are of a coarser sort, being for their own use. We are further informed that in this province are built many brigantines and small sloops, which they sell to the West Indies. The governor of Rhode Island informs us, in answer to our queries, that there are iron mines there, but not a fourth part iron enough to serve their own use; but he takes no notice of any sort of manufacture set up there. No return from the governor of Connecticut; but we find, by some accounts, that the produce of this colony is timber, boards, all sorts of English grain, hemp, flax, sheep, black cattle, swine, horses, goats, and tobacco; that they export horses and lumber to the West Indies, and receive in return sugar, salt, molasses, and rum. We likewise find that their manufactures are very inconsiderable, the people there being generally employed in tillage, some few in tanning, shoemaking, and other handicrafts; others in the building, and joiners', tailors', and smiths' work, without which they could not subsist."

The old northern colonies in America had, it is well known, very few articles fit for the British market, and yet they every year took off large quantities of merchandise from Great Britain, for which they made payments with tolerable regularity. Although they could not, like the Spanish colonists, dig the money out of their own soil, yet they found means to make a great part of their remittances in gold and silver dug out of the Spanish mines. This they effected by being general carriers, and by a circuitous commerce carried on in small vessels, chiefly with the foreign West India settlements, to which they carried lumber of all sorts, fish of an inferior quality, beef, pork, butter, horses, poultry and other live stock, an inferior kind of tobacco, corn,

flour, bread, cider, and even apples, cabbages, onions, etc., and also vessels built at a small expense, the materials being almost all within themselves; for which they received in return silver and gold, some of which remained as current coin among themselves, but the greatest part was remitted home to Britain, and, together with bills of exchange, generally remitted to London, for the proceeds of their best fish, sold in the Roman Catholic countries of Europe, served to pay for the goods they received from the mother country. This trade united all the advantages which the wisest and most philanthropic philosopher, or the most enlightened legislator, could wish to derive from commerce. It gave bread to the industrious in North America by carrying off their lumber, which must otherwise rot on their hands, and their fish, great part of which without it would be absolutely unsaleable, together with their spare produce, and stock of every kind. It furnished the West India planters with those articles without which the operations of their plantations must be at a stand, and it produced a fund for employing a great number of industrious manufacturers in Great Britain: thus taking off the superfluities, providing for the necessities, and promoting the happiness of all concerned. This trade, however, was almost entirely ruined by the rigorous execution of the orders against smuggling and the collection of the duties in hard silver, which soon drained the country of any little real money circulating in it. And, as if government had intended to prevent the colonists from having even the shadow of money, another act was passed in a few days after that for the new duties, declaring that no paper bills to be henceforth issued should be made a legal tender in payment, and enjoining those in circulation to be sunk (that is, paid off in hard money) at the limited time. That vast quantities of goods were imported, in direct violation of the letter and spirit of the law and of the commercial system of the mother country, there is no doubt. But it could not well be otherwise in a country so remote from the government to which it professed allegiance, and possessing an extent of coast which no chain of revenue cruisers that could be supported by government would be sufficient to guard with any kind of effect. The soil of the New England provinces scarcely furnished provisions sufficient to support the inhabitants. Their industry had therefore been chiefly directed to the sea—to fishing, navigation, and the various branches of business subservient to them. The cod, salmon, mackerel, sturgeon, and other species of fish which frequented the coasts and rivers in prodigious shoals, afforded employment to great numbers in taking, curing, and packing them. The New Englanders also frequented the banks and coasts of Newfoundland, and the fishing grounds in the Gulf of St. Lawrence as far as the coasts of Labrador. Besides their own fishing, they procured from the Newfoundland fishermen a part of the fish taken by them in exchange for rum of their own manufacture, and other articles of American and West India produce. The following record of rum exported from the colonies now forming the United States (chiefly from New England) to the provinces of Nova Scotia, Quebec, and Newfoundland, affords a specimen of the extent of that trade during a few years preceding the revolution:—

		1770.	1771.	1772.	1773.
West India rum,	gallons	52,712	36,873	47,736	50,716
American rum,	"	590,748	550,514	520,525	608,025
		643,460	587,387	568,261	658,741

The fish, after being sorted in the harbors, were shipped off to the countries for which each quality was best adapted. The best were carried to the southern parts of Europe, and the proceeds were generally remitted to Great Britain in bills of exchange to pay for the goods they had occasion for. A small quantity of the best fish was also sent to Britain, and the inferior sorts were destined to give a relish to the plantains and yams which constituted the principal part of the food of the negro slaves in the West Indies. After the peace of 1763, the whale fishery increased in the seas between the New England coasts and Labrador, in consequence of the encouragement given to it by the great reduction of the duties on the oil and whale fins, so much, that instead of eighty or ninety sloops, which had gone upon the whale fishery, they employed 160 in that business before the year 1775, and the other branches of their fishery increased in the same proportion. In addition to the commerce supported by the produce of their fisheries, they drove a very profitable circuitous carrying trade, which greatly enriched them, and supplied most of the money in circulation. Besides building vessels for the service of their own commerce, they built great numbers, but of no very good quality of wood or workmanship, for sale; and from the

molasses, which they brought in great quantities from the West Indies (chiefly from the French islands), they distilled rum, which, though much inferior to that of the West Indies, was very acceptable to the Indians, who readily received it in exchange for their furs and peltry. They also found a great sale for it among the fishermen; considerable quantities of it were shipped to Africa, and exchanged for slaves, or sold to the resident European slave merchants for gold dust, ivory, woods, wax, and gums. The candles made of spermaceti, furnished by the whale fishery, formed also an article of export to the amount of three or four hundred thousand pounds weight in a year, besides what were consumed upon the continent. Their exports to Great Britain consisted chiefly of fish-oil, whalebone (or fins), masts and other spars, to which were added several raw materials for manufactures collected in their circuitous trading voyages, and a balance paid in foreign gold and silver coins. In short, their earnest application to fisheries and the carrying trade, together with their unremitting attention to the most minute article which could be made to yield a profit, obtained them the appellation of the Dutchmen of America. New York, New Jersey, Pennsylvania, and Delaware have a much better soil than that of the New England provinces, and they then, as now, produced corn and cattle of all kinds in great abundance, and also hemp, flax, and lumber; to which may be added iron, potashes, and pearl-ashes. Their exports were corn of all kinds, flour and bread in great quantities, salted provisions of all sorts, live stock, including horses, horned cattle, hogs and sheep, and all kinds of poultry in great numbers, flax and hemp, boards, scantling, staves, shingles, and wooden houses framed and ready to fit up, iron in pigs and bars, and vessels, superior in workmanship to those of New England. Their chief markets for these commodities were the British and foreign West Indies, Spain, Portugal, the Western islands, Madeira and the Canary islands, whence they carried home the produce of each country and bullion. Great Britain and Ireland received from them iron, hemp, flax, feed, some lumber, and skins and furs, the produce of their trade with the Indians, together with some articles of their imports from other provinces and from foreign countries, which were raw materials for British manufactures and bullion. Maryland and Virginia almost from their first settlement made tobacco the principal object of their culture, and it long continued to constitute the most valuable export of British America; but the quantity of tobacco was diminishing in these provinces for many years before the revolution, owing to the soil being exhausted by it, and the planters had turned much of their tobacco land to the cultivation of wheat and other grain. Their tobacco could by law be exported only to Great Britain; but their corn, flour, lumber, etc., were carried to the West Indies and elsewhere. North Carolina produced also some tobacco, and it furnished pitch, tar, and turpentine, of which about 130,000 barrels were annually exported, whereof the greatest part came to Britain. The following accounts, copied from those of the custom-house, for the year nearly preceding the revolution, show the exports of the then colonies of America:—

AN ACCOUNT OF THE VALUE, IN STERLING MONEY, OF THE EXPORTS OF THE SEVERAL PROVINCES UNDERMENTIONED, IN THE YEAR 1770.

	To Great Britain. £. s. d.	To South of Europe. £. s. d.	To West Indies. £. s. d.	To Africa. £. s. d.	Total. £. s. d.
New Hampshire		464 0 5	40,431 8 4	96 11 3	
Massachusetts	142,775 12 9	76,702 0 4	123,394 0 6	9,801 9 10	550,089 19 2
Rhode Island		1,440 11 0	65,206 13 2	7,814 19 8	
Connecticut		2,567 4 5	79,395 7 6		
New York	113,382 8 8	50,885 13 0	66,324 17 5	1,313 2 6	231,906 1 7
New Jersey			2,531 16 5		2,531 16 5
Pennsylvania	28,112 6 9	203,952 11 11	178,331 7 8	560 9 9	410,756 16 1
Maryland	759,961 5 0	66,555 11 11	22,303 9 2		991,401 18 6
Virginia		73,635 3 4	68,946 9 1		
North Caroiina	405,014 13 1	3,238 3 7	27,944 7 9	71 15 4	569,584 17 3
South Carolina		72,881 9 3	59,814 11 6	619 10 9	
Georgia	82,270 2 3	614 2 0	13,285 15 1		96,169 19 4
Total	£1,531,516 8 6	£552,937 11 2	£747,910 3 7	£20,277 19 1	£2,852,441 8 4

The exports of North Carolina to the West Indies consisted mostly of salt pork, Indian corn, peas, etc. But its foreign trade was very trifling in proportion to its great extent,

and even to the quantity of its productions, and was mostly in the hands of the merchants of the adjacent provinces of Virginia and South Carolina, and of the New Englanders. In South Carolina and Georgia rice and indigo were the staple articles. The former grows on the marshy grounds near the coast, and the latter on the dry soil of the inland country. The planters had for some time applied themselves to the culture of tobacco; it was not until later that the cultivation of cotton was introduced. They made then considerable quantities of lumber. Their exports consisted of these articles; and the merchants of Charleston also shipped some skins obtained by trade with the neighboring Indians, and part of the produce of North Carolina.

The chief dependence of the colonies for the means of turning their industry to account, was thus apparently the West India trade. Every interest in England had been protected at the expense of the colonies, and the united restrictions had resulted in a larger West India trade. The government now came in to protect itself, and, to raise a revenue, laid a heavy tax upon the West India trade in 1764.

The burdens of the colonists were getting rather too many and heavy, and the people more and more disposed to question the utility of a connection which was enforced avowedly that the colonists might be hewers of wood and drawers of water for the service of the mother country. The first movement in view of the fact that the cutting off of their trade would prevent them from buying of the mother country, was to enter into an association to abstain from British goods, and to manufacture for themselves. Then commenced an active struggle. Surveyors-general were sent to America, stamp duties levied, and all the stamped paper sent out from England was burnt up by the colonists as soon as it arrived. The merchants entered into an agreement to import no more goods from Great Britain, and a manufacturing society was established. Woollen factoring became the rage, and so far was it carried, that resolutions were passed not to eat lamb, and not to patronise any butcher who killed lambs. They resolved to send no more tobacco to England. These resolutions caused a great revulsion in England among those who could get no remittance and those who had made goods for the American market. The government felt the force of this pressure, and the stamp act was repealed; but, at the same time, the moral effect of the repeal was destroyed by the declaration that the acts of parliament bound the colonies. Then followed more duties, more regulations, more resistance, increasing anger on both sides, until, in the year 1775, parliament prohibited all trade with America, and the united colonies opened their ports to all nations. During the war which ensued, the business of the country of course suffered; but a very extensive illegal trade was carried on by some of the high officers of the English government, who, under licenses granted to carry stores and provisions for the army, cleared vessels for Boston, Halifax, or Quebec, *with liberty to go to any other port*, and sent cargoes of general merchandise for sale at great profits.

These events closed colonial trade. The high profits to be derived from the sale of goods and produce during the war were too tempting to permit trade altogether to cease, notwithstanding the acts of Congress. Lord Sheffield states that one ship in particular cleared from London for New York, but went directly to Boston, where her cargo sold at 270 per cent. profit. Many cargoes were paid for in cash before they left England, on account of the risk. The cities in the United States in the power of the British were crowded with the faithful; at the same time the surrounding back country did not sympathise with them, and, as a consequence, provisions were very scarce and high. This gave rise to a clandestine trade, by which a vessel would be loaded with produce and sent to a particular spot, where, through connivance, she would be "captured," and her cargo sold as a prize, at very high prices, to the profit of both captors and owners. American produce also found its way to Europe.

With the year 1783 came peace, and with it a new era opened in the world's commerce. Britain had always treated the colonies as having no rights, and she was now required to treat with them as equals, not only in a political and commercial sense, but as rivals on the ocean, which she had hitherto affected to rule. The United States were then in by no means a prosperous condition. Their commerce had been ruined by the war; the few manufactures which had been forced into being during the difficulties had to encounter ruinous competition from imports with the return of peace; the country was flooded with depreciated paper money, of which over

$360,000,000 had been issued. The states were in debt $20,000,000, and the federal government $42,000,375; specie had mostly disappeared from circulation, and the country was without a mint, or a regular system of finance. Private credit was greatly impaired. The collection of debts had been suspended during the war, and with the return of peace the courts were filled with suits; while the markets were flooded with goods beyond the power of purchase. The several states exercised the power of issuing paper money, and making it a legal tender for debts, and each exercised the right of imposing duties upon imports and exports. All these evils were producing the most disastrous results, and in Massachusetts an open insurrection, known as Shay's rebellion, threatened not only the peace of that state, but the existence of the Union, which, indeed, was very feeble under the confederation. In September, 1787, the present constitution was finally confirmed, and the work of construction commenced. The leading measures adopted did not come fully into operation until 1791, when the custom-houses, the mint, the bank, the post-office, commercial treaties, and duties on imports, with the restrictions upon the states as to levying duties, coining money, making paper a legal tender, and minor regulations, were put in force.

The power granted to Congress by the new constitution, of levying duties upon goods imported into the country, met the exigencies of the case. The states had been repeatedly and vigorously called upon to provide the means of meeting the public debt and expenses, and it was urged upon them that independent means granted to it was the only way by which the federal government could sustain its position. This power, with that to levy direct taxes, was finally obtained by Congress under the constitution of 1787. In the meantime the exports of the country were actively resumed with the cessation of hostilities. There were, however, no means of knowing the actual state of trade until the adoption of the regulations under the constitution of 1791. The trade was, however, very active. The desire to trade on both sides was great; and no sooner was peace declared, than the king by proclamation removed all legal restraints upon intercourse with the United States, dispensing for a limited time with a manifest, certificate, or other legal document on the arrival of any vessel belonging to the United States in Great Britain. American vessels generally were placed upon the footing of colonial vessels. Although there were no United States official returns, the English custom-house returns show the trade between the two countries for that period as follows:—

	Exports to Great Britain.	Imports from Great Britain.
1784,	£743,345	£3,670,467
1785,	893,594	2,308,023
1786,	843,119	1,603,465
1787,	893,637	2,009,111
1788,	1,023,789	1,886,142
1789,	1,050,198	2,525,298
1790,	1,191,071	3,431,778

The imports from Great Britain alone, in the two first years of peace, must have been nearly $30,000,000, or $10 per head of the people against an export of $9,000,000, and were sufficient cause for much distress. This was, however, of a nature which would naturally cure itself, since it involved a fall in prices that would promote exports and check imports, and these were more nearly equalized in 1788.

In that year, however, a new event gave a great impulse to American exports. The French government had previously made a free trade treaty with England; and in 1787, under the liberal sentiments which that government espoused, they issued a decree, placing American citizens commercially on the same footing as Frenchmen, and admitting American produce free of duty. Under this regulation, the United States exported in 1788, 246,480 tierces of rice, 140,959 barrels of flour, 3,664,176 bushels of wheat, 558,891 bushels of rye, 520,262 bushels of barley. These figures represent very large exports for the state of the country at that time, when the population was small, and the farm produce drawn altogether from the Atlantic states of the country. The farms of the Hudson river and its milling powers were then in great requisition. The fisheries had large sales, and the south exported freely its rice. The enjoyment of the French and English trade gave a great impulse to the shipping interest, and the United States were rapidly growing into a power whose influence was felt in all the commercial relations of England. The political difficulties of Europe were also taking a new shape. The failure of the harvests hastened the march of affairs, and a new war between France and England left in the hands of the United States the carrying trade of the world. While American shipping was called upon to supply raw materials

and food for England and western Europe, it was also called upon to carry between European countries and their colonies. French ships could no longer safely trade with the West Indies, the Spanish merchants and government depended upon neutral flags to convey their merchandise and treasures, and even the English preferred the safety of third bottoms for the transport of their goods. The insurrection in St. Domingo, and the events in other islands, drove great numbers of persons to the United States, and many fortunes were founded. That of Stephen Girard received a great accession from the wealth placed on board his ships by persons who were slaughtered in the attempt to follow. The activity with which American shipping was employed in those years did not prevent them from seeking new trade in the east, and an American ship made its appearance in the China seas, in a commerce which has not ceased to grow to the present day. The period was marked by the development of the most enterprising genius in mercantile adventure. The name of William Gray, of Boston, soon became world-wide, and was as honored in the east as it was in the west. His ships navigated every sea, and employed hundreds of hardy men. The skilful and bold seamen who commanded his ships were not of the later class of "dandy captains," who came in with the "liners," but it was his saying that the best captains would sail with a load of fish to the West Indies, hang up a stocking in the cabin and put therein the hard dollars as they sold the fish, and pay out from it as they bought the rum, or molasses, or sugar, tie up the balance, and hand it into the counting-house on their arrival home, in lieu of all accounts. The honesty and judgment of their proceedings were beyond question; and the problem of profits between the fish sent and the cargo and stocking returned, was for the clerks to solve. The genius for plotting long and intricate voyages belonged to the head of the house. New York, in John Jacob Astor, had still a more extensive operator. He first projected the enterprises to the north-west coast, and laid out schemes which required ten years to ripen, with profound skill, and his name was known throughout the world. Philadelphia had an exponent of her commercial power in Stephen Girard, whose enterprises belonged to the same period of large operations and bold conduct. The Patersons of Baltimore led the commerce of that city; and behind these leading names came a crowd of great merchants—for the mercantile intellect seemed as active in that day as was military, political, and literary genius both on this continent and throughout the world.

With the year 1791 the new government of the United States, under the constitution adopted 1787, came into operation, and from that date regular official figures of the annual progress of the national commerce have been published. The leading changes produced by that event were the abolishment of all state laws imposing duties upon imports and exports; the creation of a tariff by Congress; the establishment of a mint, a national bank, a post-office; the funding of the government circulating paper, the withdrawal of all state issues, and the enactment of a navigation law in retaliation of the English law. The general course of trade proceeded, however, much as before, until it encountered the interruption that grew out of the European war. A few years of this prosperity excited the ire of the belligerents, and England could no longer refrain from treating the Americans still as colonists. In 1793 she issued an order to prevent food from being carried to any port occupied by French troops, and also to prevent American vessels from trading between France and her colonies. She also exercised the right of impressing American seamen to man her navy. Under these and other orders, American merchants had been robbed of large amounts of property. The complaints thus created threatened war; but it was arrested by a treaty concluded by Mr. Jay, under which $10,000,000 indemnity was paid. This treaty gave umbrage to France, which also seized American vessels; but the first consul put an end to the complaints in 1800. England had, however, in view of the apparently progressive difficulties in Europe, revived the principle she had laid down in 1756, viz.: that neutrals could carry on no trade in time of war that they had not pursued in time of peace: in other words, that American ships should not do the French carrying trade. Her next step, in May, 1806, was to promulgate the unheard-of and absurd edict, that Europe was in a state of blockade from the Elbe to Brest. The import of this was, that American ships should visit none of those ports. This monstrous pretension, in addition to some minor orders, drew from Napoleon, November, 1806, his Berlin de-

cree in retaliation, prohibiting all intercourse with the British islands. This was replied to, by Great Britain declaring France and her colonies in a state of blockade. To these insane edicts on both sides succeeded others, which so multiplied the difficulties of commerce that the United States government, to avoid war, laid an embargo upon commerce in 1808. It was not to be expected, however, that when the chief interests of the country were commercial, that such a measure should be otherwise than very unpopular, and the government changed it, in 1809, to non-intercourse with France and Great Britain. Notwithstanding all the troubles thrown in the way of commerce by the edicts of France and England, the American merchants contrived to carry on a large traffic. Under Bonaparte's continental system, which sought to exclude colonial and British productions, produce was very scarce and high in Europe. The emperor, to remedy the matter, offered high premiums for the invention of substitutes for many articles, such as indigo, cane sugar, coffee, etc. To those premiums are due the large use now made of chicory-root as a substitute for coffee. It originated in Germany, but has since spread to England and the United States. Beet-root sugar, which has become so large an industry in France and Germany, being equal in consumption to cane, originated in the same manner.* Nevertheless, all commodities were very high, and when a cargo could be got in, it realized a fortune. To get them in was the problem; and this was usually done by fees, or *pots de vin*, which were mostly appropriated by Talleyrand and Fouché, and afterward rights were openly sold by the emperor to raise money. Jerome Bonaparte, who died so recently, had married, in 1803, Miss Paterson, of Baltimore, a direct descendant of "Old Mortality," immortalized by Scott in a novel. The Paterson interest with Jerome was the means of procuring admission for many a valuable cargo. Interest and enterprise effected much, and few merchants desired to lose all chance through the intervention of their own government. Nevertheless, the embargo took place in 1808. The progress of trade from 1790 to 1808, was as follows:—

IMPORTS AND EXPORTS OF THE UNITED STATES, AND TONNAGE IN THE FOREIGN TRADE.

	Tonnage.	Dom. exports.	For. exports.	Total exports.	Imports.
1790,	474,374	$19,666,000	$539,156	$20,205,156	$23,000,000
1791,	502,146	18,500,000	512,041	19,012,041	29,200,000
1792,	564,457	19,000,000	1,753,098	20,753,098	31,500,000
1793,	520,764	24,000,000	2,109,572	26,109,572	31,100,000
1794,	628,618	26,500,000	6,526,233	33,026,233	34,600,000
1795,	747,965	39,500,000	8,489,472	47,989,472	69,756,268
1796,	831,899	40,764,097	26,300,000	67,064,097	81,436,164
1797,	876,913	29,850,026	27,000,000	56,850,206	75,379,406
1798,	898,328	28,527,097	33,000,000	61,527,097	68,551,700
1799,	939,400	33,142,522	45,523,000	78,665,522	79,069,148
1800,	972,492	31,840,903	39,130,877	70,971,780	91,252,768
1801,	947,577	47,473,204	46,642,721	94,115,925	111,363,511
1802,	892,104	36,708,189	35,774,971	72,483,160	76,333,333
1803,	949,172	42,205,961	13,594,072	55,800,033	64,666,666
1804,	1,042,404	41,467,477	36,231,597	77,699,074	85,000,000
1805,	1,140,368	42,387,002	53,179,019	95,566,021	120,600,000
1806,	1,208,716	41,253,727	60,283,236	101,536,963	129,410,000
1807.	1,268,548	48,699,592	59,643,558	108,343,150	138,500,000

In the period here embraced there occurred many events which had a very lasting and important bearing upon the future of the United States. The temporary free trade with France had imparted a sudden impulse to the export of farm produce. The wars that succeeded greatly enlarged the sphere of action for the shipping, and we find in the table that the imports of goods rose year by year from 23,000,000 in 1790 to 138,000,000 in 1807. Of these large imports, however, it appears, from the column of exports of foreign merchandise, a large portion was re-exported, forming the carrying trade between the countries of Europe and their colonies, that the war threw into the American bottoms, and which passed through American ports. A large portion of this trade was paid in money in England, forming those credits which were transferred by the Americans to the English, in payment of merchandise thence imported. Thus the trade was generally in favor of England with the United States, and in favor of the latter with Europe. Now, as England could have no direct trade with Europe during the

war, and yet was compelled to send funds thither for political purposes, the credits she received from the Americans were of vast service to her. It was in the conduct of that trade that the tonnage multiplied to the extent seen in the column. The amount increased from 474,374 tons in 1790, to over 1,260,000 tons in 1807, or an increase in capital so employed from $15,000,000 to $50,000,000 The wealth of the country was thus rapidly increasing in a foreign trade, which formed one-half of the whole commerce. The fisheries were very active and flourishing; the agricultural interest prospered under the large exports and high prices, and manufactures began to be actively developed. The Secretary of the Treasury, Mr. Hamilton, in his celebrated report upon manufactures in 1791, says: "It is certain that several important branches have grown up and flourished with a rapidity that surprises, affording an encouraging assurance of successive future attempts." Among those enumerated as then flourishing are leather, iron, wood, flax, bricks, paper, hats, carriages, etc. It was computed that four-fifths of all the clothing of the inhabitants was made by themselves, and that great quantities of coarse cloths for table and bedding were manufactured in households. All these industries pertained mostly to the north, and their surplus formed at that time most of the exports of the whole country. The southern states were possessed of 600,000 blacks, for whom there was no adequate employment. They were mostly engaged upon the production of tobacco and rice, but the market for them was not such as to afford much encouragement for the future. The increase of blacks who were not earning their support was not regarded with favor by southern statesmen under such circumstances: hence the incorporation into the federal constitution of the inhibition of the slave trade after 1808. That provision was resisted by the New England shipowners, of whose business the transportation of blacks, as a return cargo, after carrying produce to England, formed an important part. An event occurred in 1793, however, which wrought an entire change in the business of the country and the prospects of the south. Up to that time a little cotton had been raised, but the difficulty of freeing it from the seed was such that one hand could clean but 1 lb. per day, and even at 30 cents per lb. it was not profitable, under such conditions. The mode of carding and spinning it was also laborious and slow. At about that period the steam-engine in England was introduced as a motive power, and such inventions were made in the process of carding and spinning cotton as to enable one man to do the work that required 2,200 by old methods. These were the conditions of an immense demand for the raw material. Providentially, precisely at that juncture, 1793, Eli Whitney, of Massachusetts, invented the cotton-gin, by which one hand, instead of only 1 lb., could clean 360 lbs. per day. Thus the market for cotton, and the means of preparing it, were both provided at once, and they were thenceforth to furnish the chief employment for American ships. The items of domestic exports in the above table were therefore varied as follows:—

	Cotton.	Tobacco.	Flour & provisions.	Rice.	Manufactures.	Total.
1700,	$42,285	$4,349,567	$5,991,171	$1,753,796		$12,136,819
1803,	7,920,000	6,209,000	15,050,000	2,455,000	2,000,000	31,179,000
1807,	14,232,000	5,470,000	15,706,000	2,307,000	2,309,000	44,002,400

Thus cotton in a few years came to form nearly one-third of the whole exports, thereby supplying to the shipping in 1808 a compensating freight for the blacks, who were no longer to be imported. That cotton trade has not ceased to grow to the present day, and with ever increasing importance. It has supplied not only the manufacturers of Europe with raw material, but also those of the northern states. The impulse thus given to the cotton culture produced a vital change in the condition of the south, and this change is well indicated in the charge made by Judge Johnson, of Savannah, in 1807, in the case of a suit brought by Whitney to make good his claim to his patent.

"The whole of the interior," said Judge Johnson, "was languishing, and its inhabitants were emigrating, for want of some object to engage their attention and employ their industry, when the invention of this machine (the gin) at once opened views to them which set the whole country in active motion. From childhood to age it has presented to us a lucrative employment. Individuals who were depressed with poverty and sunk in idleness have suddenly risen to wealth and respectability. Our debts have

been paid off, our capitals have increased, and our lands doubled in value. We cannot express the weight of obligation which the country owes to this invention. The extent of it cannot now be seen."

In these words we have the proof of the utter depression that then existed at the south, affording a strong contrast to the immense wealth that has since been developed.

The kinds and quantities of goods imported into the country were adapted to the wants of the people at that time, when luxuries had by no means so large a share of the public taste as is now the case. The homespun goods of the country were to be gradually supplanted by machine goods as these improved and cheapened, and they did so rapidly under the influence of larger supplies of raw material, operated upon by the most astonishing inventions in new machines, and the improved scientific processes applied to the manufacture. The American manufacturers were required to withstand not only the competition of the large capital and cheap labor of England, but the constant effects of new inventions, of which the first-fruits were manifest in imported goods. They therefore grew but slowly, and hardware, dry goods, and other leading branches of merchandise, continued to be imported. The aggregate amount retained in the country for consumption did not materially increase in the ten years up to 1807.

All branches of industry were in a high state of prosperity, when the course of events brought on the embargo, which produced an immense change in the course of affairs. All those interests that had thriven so well since the peace of 1783, became suddenly depressed by the circumstances which gave an impulse to manufacture. The raw material and farm produce which had been so actively exported now accumulated on hand at falling prices, tempting the manufacturer to employ the labor no longer occupied with commercial interests, and a new order of industry sprang into being. Trade was, however, not entirely interrupted; many coasting vessels, with suitable cargoes, were by pretended stress of weather driven into foreign ports, and the United States courts were filled with suits brought for breaches of the embargo acts. Under the non-intercourse act of 1809, business recovered to some extent, only to encounter those new vexations which brought on the war of 1812. That event rather changed the course of trade than interrupted it, and was succeeded by a greater degree of activity than ever. The imports and exports were as follows:—

	Tonnage.	Domestic exports.	Foreign exports.	Total exports.	Total imports.
1808,	1,247,596	$9,433,546	$12,997,414	$22,430,960	$56,990,000
1809,	1,350,281	31,405,700	20,797,531	52,203,231	59,400,000
1810,	1,424,784	42,366,679	24,391,295	66,757,974	85,400,000
1811,	1,232,502	45,294,041	16,022,790	61,316,831	83,400,000
1812,	1,269,997	30,032,109	8,495,127	38,527,236	77,030,000
1813,	1,166,629	25,008,152	2,847,845	27,855,997	22,005,000
1814,	1,159,210	6,782,272	145,169	6,927,441	12,965,000
1815,	1,368,127	45,974,405	6,583,350	52,557,753	113,041,274
1816,	1,372,218	64,781,896	17,138,556	81,920,452	147,103,700
1817,	1,399,911	68,313,500	19,358,069	87,671,569	99,250,373
1818,	1,225,184	73,854,437	19,426,096	93,280,533	121,750,000
1819,	1,260,751	50,976,838	19,165,683	70,142,521	87,125,000
1820,	1,280,166	51,683,640	18,008,029	69,691,669	74,450,000
		$544,007,213	$185,376,954	$731,284,167	$1,039,910,347

The large carrying trade that had existed in foreign produce gradually perished on the return of peace in Europe, throwing much tonnage out of employ; and domestic produce, although it found its way abroad to some extent, still fell in value, and accumulated in quantity in the home ports. Cotton in particular felt the want of the foreign market, although its presence in New Orleans became an instrument in the great triumph of our American troops over the British veterans, which had just driven the French out of Spain. The same men who had routed the legions of Napoleon embarked at Bordeaux for New Orleans, to fall before the cotton bags defended by Jackson and his gallant band.

The course of events that had been productive of so much prosperity from 1783 to 1808, was followed in the next seven years by commercial disasters, it is true, but those disasters were relieved by the brilliant position assumed by the United States among the nations of the earth as a naval power.

The American tonnage, which increased to over 4,000,000 in 1807, had given employment to large numbers of hardy and skilful seamen, men whose professional skill and nautical daring had already made them famous, and had incited Great Britain to those impressments by which she sought to obtain the services of such able men. When her conduct drove the American government to embargo commerce, the employment of ships and men became restrained, and their daring manifested itself in infractions of the law. Non-intercourse and war drove them altogether out of employment, and they crowded into the navy and privateers. Up to that time England was the admitted mistress of the seas. Every nation in Europe had been driven from the contest. The best fleets of Napoleon, invincible upon land, had invariably struck to the British flag, and the feeble nation upon this continent, just formed out of revolted colonies, was hardly worth considering at all as a power. The proof of the contempt in which it was held was given in the conduct of the nations that forced non-intercourse and war upon the United States. It came very hard for all the thriving interests here to face ruin in the shape of war, but it became inevitable. So distrustful, however, was even Congress of the ability of the country to resist England, that it was determined, on the declaration of war, to send the government ships up the rivers, where they would be out of the reach of the dreadful English cruisers. It was only at the earnest solicitation of the leading officers of the navy that permission was finally given for the ships to go to sea. The astonishment in Europe, the dismay in England, and delight in the United States, could scarcely be equalled when the encounter on the seas resulted in the unprecedented spectacle of a series of triumphs over the tyrant of the ocean. In the short period of twenty years a power had arisen that was thenceforth to know no master upon the ocean, and submit to no insults, and this power had been born of commerce. The war closing with the defeat of the best troops of England, the "liberators of Spain," before the lines of New Orleans, left the United States not only in the position no longer of merely liberalist colonies, but in that of a victorious power among the nations of the earth. It had cost much to win that position, but it was worth the struggle, since it ensured continued peace thereafter. The nations of Europe have not since thought it worth while to provoke new hostilities, but have, on the other hand, from time to time, settled up for the injuries they then committed upon American commerce.

The intervention of war had paralyzed every industry. The farm products that had been raised for export no longer had an outlet for the surplus; cotton, rice, and tobacco accumulated idly in warehouses. The ships were freightless at the docks, and all the earnings of industry were at their *minimum*. It was an advantage to manufacturers, indeed, to have no competition from abroad; but, on the other hand, the general depression of all other industries destroyed the home market for goods. The general depression of trade and the depreciation of property undermined all credits. Those who had contracted obligations to pay when merchandise was saleable and property convertible, could not pay when all values were paralyzed. In order to remedy this state of affairs to some extent, which was ascribed by certain parties to the want of a United States bank, new state banks were multiplied, under the erroneous notion that these could supply capital. Inasmuch, however, as the radical evil was inability to pay, increase of promises did not help the matter, and a general suspension of the banks took place. The country was filled with irredeemable paper; and the federal debt, which had been $75,463,476 on the consolidation of the revolutionary debt in 1790, had risen to $127,334,934 when peace took place in 1815. In such a state of affairs the return of peace brought with it a flood of imported goods, which amounted to $147,000,000 in 1816, giving the government a customs' revenue equal to $36,306,874 in the year. The new United States Bank went into operation at the same time, causing for the moment additional pressure; but the sale of its stock, and of the federal government stock, subscribed to its capital, abroad, helped to correct the exchanges. The produce that had accumulated during the peace also went forward in great quantities, giving a considerable impulse to the aggregate of domestic exports, which rose to $73,854,000 in 1818. Of this amount 40 per cent. was cotton. In some sort, the trade, which had lain dormant during the war, was forced into the first three years of peace. In the five years that ended with 1820 there was, consequently, great activity of trade, demanding greater banking facilities, thus promoting a restoration of con-

fidence, and aiding the United States Bank in restoring order to the currency. The year 1820 brought with it new regulations in regard to the taking of the census, and a law of Congress was enacted for correctly keeping the import, export, and tonnage returns, which has since been done, and annually reported. The revenues of the government, which depended upon duties on imports, suffered interruption during the war, and a resort to taxation became necessary. This had been done in 1791 by a tax on houses and lands. A new valuation took place in 1815; and this, compared with the valuation of 1791, gives the progress of real property in all the states during that period. The census of 1820 comprised, in addition to the population, some items of the industry of the people. Comparing the leading aggregates at the two periods, the results are as follows:—

	1791.	1820.	Increase.
Population	4,049,600	9,638,131	5,588,531
Taxable land, acres	163,746,686	188,286,480	24,539,794
Valuation	479,293,263	2,275,730,124	1,796,436,861
Imports	23,000,000	74,450,000	51,450,000
Exports	20,205,156	60,691,669	40,486,513
Tonnage	474,374	1,280,166	805,792
Bank capital	3,000,000	137,110,611	134,110,611
Manufactures	5,600,000	52,776,530	47,176,530
U. S. debt	75,463,476	91,015,566	15,552,090
" revenue	4,899,476	16,779,331	12,379,858
Post offices, No.	75	4,500	4,425
Post roads, miles	1,905	67,586	65,681
Postal receipts	46,294	1,411,927	1,064,738

Such was the progress of the country in the first thirty years of its existence. Its population had increased 125 per cent. It had added five states to the Union, and 24,539,794 acres to its taxable property, the value of which had risen nearly fivefold. Its tonnage had increased threefold, its manufactures tenfold, and the capital employed in banking had been increased $134,000,000. This great prosperity had manifested itself in face of a war with the greatest naval power the world had ever seen, and over which a decisive victory had been won. Commerce, under favorable circumstances, had been the basis of this great growth of wealth.

CHAPTER II.

CHANGED INTERESTS—MANUFACTURES—COURSE OF TRADE—SPECULATION—REVULSION—BANKRUPT LAW—ENGLISH FREE TRADE—REVOLUTION IN FRANCE—FARMERS—GOLD.

The events of the war of 1812 had brought with them much experience. Up to that period great dependence upon foreign manufactures had existed. It is no doubt true that most of the common wearing apparel and similar goods were made in families, but iron ware, and most articles that enter into the materials of daily avocations, came from abroad. With the war came great deprivation, and many necessary goods, that had been abundant, were no longer to be had. Materials for the army and navy, of all sorts, particularly blankets for the men, were with difficulty obtained. This necessity gave a great spur to individual enterprise, and at the same time forced upon the government the idea of fostering home industry. This necessity was also apparent from the nature of the government. The original Confederation had given to Congress the power to levy duties upon imports, and also direct taxes for its support. The former right was exercised up to the war, and the government finances were independent and flourishing. When, however, the war put an end to commerce, the government revenues also ceased, since, there being no imports, there could be no duties. Resort to taxation was then the alternative. The mode adopted by Congress was to apportion the amount required upon each state, and let the respective governments collect it. It was soon found that this was a very inefficient mode of proceeding, since the states could not be coerced, and the federal government was in danger of falling to pieces. The statesmen of the day saw the necessity of strengthening the government on the return of peace, and this was done by the same means as it was sought to encourage home manufacture, viz., by raising the duties upon imported goods. A new tariff was therefore enacted in 1816, increasing the duties, particularly upon cotton goods, in taxing which the *minimum* principle was introduced—that is, that the goods should pay 20 per cent. duty, but that the cost on which it was calculated should not be less than a fixed *minimum*. Thus, cotton cloth was to pay 30 per cent., but the cost must not be under 20 cents per yard, or 6 cents per square yard duty. The new duties, falling upon the large importations that followed the peace, rapidly swelled the revenues beyond the current wants of the government; at the same time, notwithstanding that the navy had so well discharged its duties in time of war, and the merchant marine had so well vindicated its ability to furnish sailors, Con-

gress saw fit to pass a navigation act, by which the officers and three-fourths of the crews of American vessels should be American citizens. The act is of itself mostly a dead letter, since naturalization is carried on to an extent which makes the phrase "American citizen" a very ambiguous one. The object is desirable, but the means hampers trade, and does not effect the object. With the operation of the higher duties during the four years that ended with 1820, the imports diminished; the currency was contracted and restored to a specie basis; the exports of the country, that accumulated during the war, passed off; the proceeds had cancelled obligations, bringing the country into a better condition; and the federal government had been enabled to pay off a considerable amount of its debt. The countries of Europe had also become settled after the convulsion of war and the effects of peace. The Bank of England, that had been suspended for a quarter of a century, resumed payments, and trade generally began to resume its accustomed channels. Many currents of business had, as a matter of course, been disturbed. The large foreign carrying trade that had been enjoyed by American vessels was now resumed by the nations of Europe, and new currents of enterprise were to grow up, under new appliances. The capital of New England, that before the war had been exclusively employed in navigation and agriculture, was, by the events of the war, diverted to banking and manufactures, and was now growing in the last direction, banking having proved disastrous. The tariff of 1816 had been meant to aid them, and in 1818 and 1819 additions were made to the protective character of the duties. Cotton manufacture grew, and the great staple culture of the south—cotton—was developed, while Europe, no longer wanting so much food, the agriculturists became depressed. The manufacturing interest was therefore the favorite, and in 1824 a new tariff of higher duties was demanded and passed, to be succeeded by one of a higher grade of protection in 1828. The effect of these changes, with the steady nature of the demand for produce abroad, was to keep the imports and exports at moderate figures up to 1831, when a reduction of duties took place. In all that period, under the action of the United States Bank, and the annual payments of an average of some $7,000,000 by the government on its public debt, the currency was very steady, and commerce regular. The exports and imports for the ten years under those rising tariffs, were as follows:—

	Dom. exports.	For. exports.	Total exports.	Imports.	Ex. specie.	Im. specie.
1821,	43,671.894	21,302,488	64,974,382	62,585,724	10,478,059	8,064,890
1822,	49,874,185	22,286,202	72,160,387	83,241,511	10,810,180	3,369.846
1823,	47,155,408	27,543,622	74,699,030	77,579.267	6,372,987	5,097,896
1824,	50 649,500	25,337,157	75,986,657	80,549,007	7,014.552	8,379,835
1825,	66,944,745	32,590,643	99,535,388	96,340,075	8,932,034	6,150,765
1826,	53,055,710	24,539,612	77,595,322	84,974,477	4,704,533	6,880,966
1827,	58,921,691	23,403,136	82,324,827	79,484.068	8,014,880	8,151,130
1828,	50,669,669	21,595,017	72,264,686	88,509,824	8,243,476	7,489,741
1829,	55,700,193	16,658,478	72,358,671	74,492,527	4,924,020	7,403,612
1830,	59,462,029	14,387,479	73,849,508	70,876,920	2,178,773	8,155,964
	$536,104,918	$229,643,834	$765,748,752	$798,633,427	$71,673,494	$69,154,645

If we compare this period of ten years with the ten years of comparative quiet immediately preceding the war, we shall find the following aggregate results:—

	Imports.	Re-exports of foreign goods.	Domestic exports.	Total exports.
1798—1808,	$950,470,000	$422,500,000	$393,700,000	$816,200,000
1821—1831,	798,633,427	229,643,831	536,104,918	765,748,752
Decrease	$157,836,573	$192,856,166		$50,451,248
Increase			$142,404,918	

The decrease was altogether in the foreign goods, or colonial produce brought into the country during the European war for reshipment to Europe; while the increase in domestic exports was mostly cotton, that article forming three-fifths of the whole value exported. The exports of flour and provisions were limited, but manufactures began to form an item in the exports. It is to be borne in mind that Great Britain had made great efforts after the war, when her navigation laws were modified, to concentrate the trade of the world in her warehouses. Inducements were held out by facilities of entry and advances on merchandise to attract thither the produce of all nations, because, under such circumstances, not only did the British manufacturers have within their reach the raw materials of all manufactures, but trading vessels had, in

those ample warehouses, every variety of goods to make up an assorted cargo for any voyage in the world, and make of them the medium of selling British goods. Thus, all the new countries of America, Africa, and Asia offered markets which would absorb small quantities of a great variety of articles, but a cargo of any one description would glut them. To make a profitable voyage, therefore, the cargo should be composed of such a variety of wares as would all sell to advantage. If Virginia was to send a whole cargo of tobacco to Africa, a portion of it would sell, and the remainder be a dead stock, and the voyage a losing one. The same thing would happen to a cargo of rum, or calicoes, or gunpowder, or hardware, or the infinite variety of articles that make up the wants of a small community. If a vessel's cargo should be composed, in proper proportions, of all these articles, the whole would sell well, and the voyage pay; but for a vessel to go round to places where each of these articles is to be had, and so collect a cargo, is expensive, and would still result in loss. The English warehouse system sought to supply a want here by attracting into them all possible descriptions of tropical and other produce. A ship might then make up her cargo for any part of the world at the smallest average expense, and every cargo was sure to be completed with British manufactures. Under such circumstances, they could compete with any other nation. The advantage was so manifest, that American ships would go out in ballast to England, to fit them out for Asiatic markets. It resulted from this that England continued to be the recipient of most American produce, not only for her own use, but for re-export elsewhere. With her large capital she advanced on the produce, and so controlled it, becoming the banker for the Americans. The nations of the continent, slowly recovering from the effects of the long wars, began to manufacture such articles as found sale in the United States, while they did not purchase largely in return. China furnished teas and silks, and got its pay by bills drawn against American credits in London. The new bank of the United States operated the credit, giving the China merchant a six months' bill on London, which he took in preference to silver, which he before remitted. These bills were paid out for the tea, and by the Hong Kong merchant, who received them, paid to the British East India merchant for opium or raw cotton. By the latter it was remitted to London, where it was met by the funds already provided through the United States Bank, by sales of American produce. This centralization of trade in England became, however, inconvenient. The American ships that now began to carry cotton, tobacco, rice, and some breadstuffs to Europe, had thence no adequate return freights, because those countries did not as yet offer a good supply of merchandise. Soon, however, there sprang up an increasing migration to the United States from Germany across France *via* Havre, and these passengers became a desirable return freight, causing a change in the model of the ships engaged in the trade. By this means the freight was reduced, or rather the ship could carry cotton out cheaper, since she was no longer compelled to return empty. The result was, therefore, cheapened transportation, in the same manner that the modification of the navigation laws, enabling ships to carry cargoes both ways, had cheapened freight. The increasing exports, and the weight of the tariff of 1828 upon imports, had so operated upon exchanges as to cause an excess of specie to be imported to the extent of some $15,000,000 in the last few years. This influx accumulated in banks, and disposed them to inflate the currency, thereby inducing imports at a moment when reductions in duties were made by the tariff of 1831; and this inflation was aided by the conflict which then began between the United States Bank and the government in relation to the re-charter of the institution. These circumstances laid the foundation for the great speculation which followed. The high tariff of 1828 had produced much agitation, that promised serious difficulties. The northern, or New England states, whose interests were originally commercial, opposed the war, because it was destructive of those interests. Their capital was turned by it into manufactures, and they demanded protection for that interest. This was acceded to, because all parties had witnessed the evils of a dependence upon foreign nations for manufactures, and also because the federal government needed strengthening by the support which high duties would give it. In 1830 the manufactures had enjoyed fifteen years of protection, and should be firmly rooted. The federal government, from being too weak, had become too strong. The public, who consumed goods foreign and domestic,

were paying too high a tribute for the support of the manufacturers, and the states felt their rights encroached upon by the growing power of centralization. A change of policy in respect of the tariff was insisted upon, and a reduction took place in 1831, many goods being made free. In 1832 Mr. Clay's compromise was passed, by which biennial reductions were to take place, until, in 1842, all the duties should be reduced to a general level of 20 per cent. ad valorem. These reductions in duties, at a time of bank inflation and speculation, eminently promoted those imports which, under such circumstances, were carried to excess.

The manufactures of the country had largely increased during the ten years up to 1830. The capital employed in cotton manufacture at that date was $40,614,984. There were 795 mills, working 1,246,503 spindles and 33,506 looms. They produced 230,461,000 yards of cloth, that weighed 59,604,926 lbs., and was worth $26,000,000. These mills employed 117,626 persons, whose wages were $10,294,944 per annum. This was a large interest grown up in cotton. The progress of manufactures generally was given by the census, as follows:—

	1820.	1830.
Cotton	4,834,157	40,614,984
Wool	4,113,068	14,528,166
Pig iron and castings	2,230,276	4,757,403
Wrought iron	4,640,669	16,737,251
Brewers and distillers	4,876,486	3,434,808
Salt	1,852,258	935,173
Other articles	29,919,621	46,077,092
Total	$52,466,535	$127,084,877

In the considerable increase of interests, here apparent, many of the factories suffered by home competition, when too much capital had been induced, by hope of protection, to go into the business. The operations of these manufactures no doubt produced a local demand for materials and food; but this did not suffice, however, in the absence of a foreign demand, to support prices of farm produce, in face of the large development given to agriculture by the increasing immigration and settlement of the western lands.

The season of speculation which now seized the public mind was one of the most remarkable in the history of commerce. There is no doubt that it had its origin in the great success which had hitherto been manifest in the progress of the country. Those who had seen but thirty years of active life had witnessed the most extraordinary growth of numbers and wealth in the whole country, and in cities particularly. The highest prizes had attended those who had held land at the points favorable to trade, which trade was the foundation of cities. There seemed hardly any limit to the rise that might take place in the value of property, and so liberal were bank accommodations, there was very little difficulty in procuring the means to hold land. In almost all cities, the early settlers had become possessed of land cheap. The rapid growth of trade, bringing in numbers to occupy those lands for stores and dwellings, caused a competition that raised rents and values rapidly in price. The effort was then to become possessed of land for speculation, and this effort was attended with the wildest excitement; a few hours sufficed to place a moderate fortune in the hands of the buyer, and prices rose to a fabulous extent in a short time. From the cities, the excitement spread all over the Union, and productive employments were neglected to trade in lands; at the same time, the fictitious fortunes made by these means stimulated expense, and the wealth of the country was diminished by a double process—by lessened production, and increased consumption—"the candle was burned at both ends," and there could be little surprise that it was speedily consumed. The course of the trade for the ten years up to 1840 was as follows:—

	Dom. exports.	For. exports.	Total exports.	Imports.	Ex. specie.	Im. specie.
1831,	$61,277,057	$20,033,526	$81,310,583	$103,191,124	$9,014,971	$7,305,945
1832,	63,137,470	24,039,473	87,176,943	101,029,266	5,656,340	5,907,304
1833,	70,317,698	19,822,735	90,140,433	108,118,311	2,611,701	7,070,368
1834,	31,034,162	23,312,811	104,336,973	126,521,332	2,076,758	17,911,632
1835,	101,189,082	20,504,495	121,693,577	149,895,742	6,477,775	13,131,447
1836,	106,916,680	21,746,360	128,663,040	189,980,035	4,324,336	13,400,881
1837,	95,564,414	21,854,962	117,419,376	140,989,217	5,976,249	10,516,414
1838,	96,033,821	12,452,795	108,486,616	113,717,404	3,508,046	17,747,116
1839,	103,533,891	17,494,525	121,028,416	162,092,132	8,776,743	5,595,176
1840,	113,895,634	18,190,312	132,085,946	107,141,519	8,417,014	8,882,813
	$842,800,909	$199,451,994	$1,092,341,903	$1,302,676,082	$56,839,933	$107,469,096

This period of commerce shows remarkable results, since it illustrates the nature of the pure speculation that possessed the country. In the period up to 1830, the imports had exceeded the exports $32,884,675, or 5 per cent. in the whole ten years, an amount which was not more than healthy. In the succeeding ten years, the excess of imports over the exports was $210,334,181, or 20 per cent., and this took place although the exports were valued at inflated prices, which were not realized abroad. The course of business at that period required shipments of American produce, mostly cotton, to firms abroad, who made advances on the consignment at a certain ratio, less than the face of the invoices. The produce was then afterward sold for the account of the owner, and not unfrequently did not bring the amount of advances. Thus, if cotton was shipped at 16 cts. per lb., and 12 cts. advanced, the amount realized might be only 11 cts. Hence, the real exports of the country were not always measured by the export value. On the other hand, the goods imported were mostly ordered by importers here, and purchased on credits in the manufacturing districts. These credits were operated through large London houses connected with the American trade, and whose ability to extend credits depended upon the indulgence of the Bank of England, and that institution itself was subject to pressure whenever the harvests should fail. The system of credits was open, however, up to 1836, in England, under apparently favorable circumstances. The United States and rival banks here favored the extension of credits in every possible way; and the goods bought on credit in Europe were sold on credit here, and consumed by those who held fortunes based upon the apparent rise in lands bought on speculation, for promises. The numbers so engaged diminished production, while luxuries were imported more rapidly than ever. The returns of certain articles of domestic exports and imports, indicate the extent of this process as follows:—

	Imports.		Imports.		Exports.	
	Silks.	Wines.	Spirits.	Sugar.	Flour.	Provisions.
1831,	$5,932,243	$1,673,058	$1,037,737	$4,910,877	$10,461,728	$17,538,227
1832,	9,248,907	2,397,479	1,365,018	2,933,688	4,974,121	12,424,703
1833,	9,498,366	2,601,455	1,537,226	4,755,856	5,642,602	14,209,128
1834,	10,998,064	2,944,388	1,319,245	5,538,097	4,560,379	11,524,024
1835,	16,677,547	3,750,608	1,632,681	6,806,425	4,394,777	12,009,399
1836,	22,980,212	4,332,034	1,917,381	12,514,718	3,572,599	10,614.130
1837,	14,352,823	4,105,741	1,470,802	7,203,206	2,987,269	9,588,359
1838,	9,812,338	2,318,282	1,476,918	7,586,825	3,603,299	9,636.650
1839,	21,752,369			9,929,502		14,147,779
1840,	9,835,757			5,580,950		19,067,535

Thus, while the import of silk rose from less than $6,000,000 to nearly $23,000,000, and the four articles, including wine, spirits, and sugar, from $13,550,000 in 1831, to $41,850,000 in 1836, the export of provisions, notwithstanding the high prices, fell from $17,538,227 to $10,614,130. So great had been the decline in production, that in the last-named year, 1836, wheat was actually imported at $2 per bushel, from Russia, on credit, to feed land speculators in the west. The mania for land speculation was fed by bank bubbles, and large sums were drawn from the east as well as Europe, for the creation of banks west and south-west. The transmission of these sums was the means of credits by which goods were consumed. There were created in the period from 1830 to 1840, 577 banks, having an aggregate capital of $218,000,000. These banks were mostly started west and south-west, with eastern capital paid in subscription to the bank stock, and for state bonds issued in aid of the banks. Thus a stream of credit issued from London, which, aided by circumstances, poured over the Union, checking industry, exhausting capital, and raising prices. The harvests of England had been good for some years, and the importation of corn had ceased. As a consequence, exchanges were in favor of England, and the bank disposed to be liberal. It was so to the American houses in London. These houses were thus enabled to grant credits to United States importers of goods who made their purchases in Lancashire. The goods arriving in the United States, were sold to jobbers and through the auction houses at long credits, and these were payable at the local banks started all over the country. The quantity of goods thus sold was increased by the large fire in New York in December, 1835, by which it was estimated $18,000,000 worth of property was consumed. These

CLIPPER SHIP.

goods were replaced on credit, and the city rapidly rebuilt by the same means, adding much to the accumulating liabilities. At the same time, as we have seen, $200,000,000 were sent from the east to the west to start banks. These banks were also authorized to issue paper to circulate as money; and capital and circulation were loaned to those who purchased and consumed goods. Thus, while the city merchants were selling their goods to the dealers of the interior, on credit, the capitalists were sending money in the same direction, with which to start banks; these were to lend the dealers the means of taking up their notes. As long as this lasted, business was brisk; but it soon came to an end. The federal government had also been a party to the excitement, by selling its lands on credits to speculators, and the amount of these sales became enormous, when suddenly the government issued its famous "specie circular," by which the lands were to be paid cash in specie. This was the first blow to the credits. The government, determined to curtail all credits, had made peremptory demand upon France to pay the indemnity long since due. This payment took place, and was received at this juncture very opportunely in gold. The capital of England, which had been loaned so freely all over the world, began to run short. The harvests, also, which for so many years had sufficed for the national wants, suddenly failed, in 1836, and it became necessary to import corn for cash. This circumstance caused exchanges to run higher against England, and the bank began to contract. Its first notice was in August, 1836, to the American houses to curtail their credits. This was the signal for payment through the whole line of credits from the Bank of England to the western consumer of goods. The pressure became intense, and in May, 1837, every bank in the Union had suspended their payments. The three large American houses in London, known as the "three W's," Wildes, Wiggins, and Wilson, failed for many millions, and their assets consisted of the credits they had granted American importers. The latter stopped in great numbers, with assets due from dealers all over the country; and the latter stopped with large assets due from speculators who held land at paper prices, and who insisted that a return of paper inflation would enable them to pay. The banks of the interior had large sums due them from speculators who held land, as well as from shopkeepers who had trusted consumers. The shopkeepers had bought of the merchants in eastern markets, and had given notes payable at their local banks. Those notes were generally sent for collection through the city bank to its country corresponding bank, and on its maturity was met by a discount of the maker's note by the local bank. This mode of payment only transferred the debt from the merchants to the bank, and was possible only as long as the eastern bank did not claim the balance due it. When that was done, failure took place. A great struggle was made to restore that inflation, particularly by the United States Bank, which, with its southern and western dependents, felt that unless the debts contracted all over the country in an inflated currency, could be paid in a similar currency, they could not be paid at all. Public opinion was, however, bent on resumption, and January, 1839, it took place. The United States Bank sought to create foreign credits by obtaining state stocks on credit, and, by selling them in Europe, aid the exchanges. It also entered the cotton market as a monopolizing buyer. The institution, on the expiration of its United States charter, had obtained a new one from Pennsylvania. When it went into operation as a state institution, its old bills had been called in, and new ones issued. When it struggled to maintain its resumption in 1839, it had the boldness to exhume its old bills and pay them out for cotton at almost any price, which cotton was sent to its agents in Liverpool for sale, and against which to draw sterling bills, which it sold in New York for cash; thus forming a kiting operation. At the same time, it had obtained some $15,000,000 of state stocks from Mississippi, Michigan, Indiana, Illinois, and other states, on similar terms, and these were sent to London for sale; but not selling readily, they were pledged to cover bills drawn by the bank. All these plans were insufficient to sustain the institution under its load of debt, and it became evident that nothing short of a second general suspension of the banks could save it. This it undertook to bring about by selling in the New York market its bills on France and England to any amount, and drawing the proceeds from the New York banks in specie. This course was pursued through August, 1839; when, early in October, the news came that the bills so sold in New York on France had

been protested. The bank then finally failed, and went into liquidation, when it was found that more than its whole capital had been lost. This event carried with it most of the banks in the country that had followed a similar policy. Liquidation then became general, and went on up to 1843, when the lowest point of credits was reached. The short harvests of England, that were the immediate cause of the explosion in 1837, were also the cause of a gradual restoration of sound prosperity in the United States, by reviving a demand for the products of land. This was the more readily done that the fictitious paper prices that prevented American farmers from competing with those of Europe, had disappeared with the bank stoppages. The farmers had nominally sold their produce well, but they had taken pay in bank paper, which the revulsion left valueless in their hands. The process of liquidation swept several hundred banks out of existence, but there remained an immense load of debt due by individuals, to relieve whom Congress, in 1841, passed a bankrupt law. The operation of the law relieved 39,000 persons, from debts to the amount of $441,000,000. The disasters involved the failure of several states, with an aggregate debt of $100,000,000. The banks that were liquidated had an aggregate capital of $200,000,000. Thus, the recorded losses were as follows:—

States	$100,000,000
Bankrupt debts	441,000,000
Bank capital	200,000,000
	$741,000,000

The debts that were settled without the intervention of the law, were supposed to be equal to those legally discharged, but the amount recorded is an enormous sum. In consequence of those disasters, many states, in revising their constitutions, forbade the authorization of more bank charters.

While speculation had thus run riot, during the ten years up to 1840, consuming the available capital of the country, the population had not failed to increase and extend itself over the face of the country. Many of the states had projected large works, for the construction of which they had contracted debts; and the expenditure upon the works had attracted laborers, who ultimately became settlers. The sales of public lands had been very large, but these had to a great extent been taken up by speculators, and this operation in some degree prevented actual settlement. All these lands were now pressing upon the market, and the distress in cities attending the subsidence of building and other employments, drove crowds upon farming lands, laying the foundation of future prosperity. During the speculative years, the commercial cities increased most rapidly; and with the revulsion, the agricultural states took the lead. The cotton culture had received a great impulse during the same period, by means of the banking credits. The old lands of the Atlantic states were capable of producing cotton at 6 cts. per lb., but it was found that the new lands of the Mississippi valley would produce it at a much less rate. The migration of planters with their hands then took place on to the new lands of the west, and the means of so doing were supplied to a great extent by the state bonds issued in aid of banking capital. These institutions made loans to the planters on security of the crops. Under this spur, large tracts of land were got under cultivation, disastrously to the banks, but favorable to a large supply of cotton, of which the export became large.

The ten years, 1840 to 1850, thus opened under great depression. The finances of the federal government, in consequence of the revulsion of trade in 1837, had fallen far behind its expenses, while the duties under the biennial reductions of the compromise tariff were approaching their lowest grade of 20 per cent., and it became necessary to restore the duties, in order to procure revenue. The utter failure of the United States Bank, of which a large portion of the stock was sent abroad; the failure of so many states, some of which repudiated their debts altogether; and the bankrupt law, which had expunged so large a volume of private debts, had produced so much discredit abroad, that a 6 per cent. stock of the federal government was utterly unsaleable, notwithstanding that in 1835 the last dollar of the old national debt had been paid in full. Congress, therefore, in 1841, passed an act levying 20 per cent. duties on a long list of articles before free, and in 1842 raised the general level of duties. At this juncture there had been no plan of settling the state debts, and efforts to restore the national bank failed. Amid these adverse circumstances, however, industry revived from the ruins of speculation, and the foreign commerce was placed upon a more liberal footing. The English government, taught by

the experience of the past, had decided to relieve commerce from many restrictions, and in 1842 modified her corn laws, and admitted provisions, which had previously been prohibited, to entry, at comparatively low duties. The first opening of the trade to provisions—cheese, butter, etc.—was not at first successful; many attempts were required, and much perseverance, before the American articles became properly prepared for and appreciated in the English markets. Success, however, ultimately attended the trade, and a large opening to western produce was made, that has proved of a permanent nature. This circumstance gave an impulse to commerce, which was greatly accelerated by the failure of the potato crops in 1845 and 1846. That event was of so grave a nature as to lead to the abrogation of the corn laws altogether, and also to a suspension of the navigation laws in England, France, Holland, and Belgium, for the reason that the shipping was inadequate to the transportation of food. The course of commerce during the ten years, 1841 to 1850, was as follows:—

	Exports.		Total.	Imports.	Of those amounts. Specie.	
	Domestic.	Foreign.			Exports.	Imports.
1841,	$106,382,723	$15,469,081	$221,851,803	$127,946,177	$10,034,332	$4,988,633
1842,	92,969,996	11,721,538	104,691,534	100,162,087	4,813,539	4,087,016
1843,	77,793,783	6,552,697	84,346,480	64,753,799	1,520,791	22,390,559
1844,	99,715,179	11,484,867	111,200,046	108,435,035	5,454,214	5,830,429
1845,	99,299,776	15,346,830	114,646,606	117,254,564	8,608,495	4,070,242
1846,	102,141,893	11,346,623	113,488,516	121,691,797	3,905,268	3,777,732
1847,	150,637,464	8,011,158	158,648,622	146,545,638	1,907,024	24,121,289
1848,	132,904,121	21,132,315	154,032,131	154,998,928	15,841,616	6,360,224
1849,	132,666,955	15,088,865	145,755,820	147,857,439	5,404,648	6,651,240
1850,	136,946,913	14,951,806	151,898,720	178,138,318	7,522,994	4,628,792
	$1,131,458,801	$129,105,782	$1,260,564,583	$1,267,783,782	$65,010,921	$86,906,156

In these aggregates we have the reverse of the trade during the ten years to 1840, since the imports scarcely exceeded the exports, including specie; and exclusive of specie, there was an excess of $14,677,036 exports over imports. The exports of domestic produce had become very considerable. The large breadth of land that had been brought under cotton, and the rapid settlement of farm lands after the revulsion, had laid the foundation for an extended production, while the means of transportation had been so much increased, as to equalize prices at a lower level on the seaboard, and supply a far larger quantity for shipment than had been possible before. Nevertheless, the demand became so urgent in the three years ending with 1847, as to tax every means of transportation to its utmost capacity, and to carry freights to an inordinate height, notwithstanding the suspension of the navigation laws in England.

The demand for food abroad had superseded that for all others to a considerable extent. The necessity of carrying food raised the freights so high, that other materials would not pay to carry; the more so, that it is a well-known effect of dear food, to lessen the purchase of clothing and other articles. Hence, when the market for cloths was lowest, the freight on the materials was highest. The condition of Ireland made it necessary to introduce Indian corn as a substitute for potatoes. This was by great efforts accomplished in a degree, and thereby a permanent market made for corn. That article of food is, however, very far from being popular with the people. The effect of the famine, joined to the general influence of the change of English policy, was to carry up the domestic exports from $106,000,000 in 1841 to $150,000,000 in 1847. This increase was almost entirely due to breadstuffs and provisions, which reached a value of $68,761,921 in 1847, being nearly one-half the whole domestic exports for that year. The large sale of western produce so inaugurated gave an unusual stimulus to the activity of internal trade, and to the value of western lands and credits; and the foundation was thus laid for the movement which so singularly culminated in 1857.

While the famine demand of 1846 caused so large an export of American produce, in return for which merchandise was necessarily to be received, the federal government recovered from the embarrassments induced by the revulsion. It was, however, still embarrassed, but this time with a surplus, rather than a revenue; and in 1846 the tariff was again revised, so as to reduce the general average of duties some 7 per cent. The

principle of protection was finally disavowed, and that of revenue only admitted as a rule of action. This reduction of duties naturally gave a spur to importation, at a moment when the exports were very large. There was at that time, however, no speculative action in this country, nor much inflation of credit, by which large quantities of goods could be suddenly placed; and the sales of produce were so prompt, as to throw a large cash balance in favor of the country: hence, of the imports of 1847, $24,121,289 were in specie—the largest amount ever imported from abroad in one year—a fact which imparted much activity to trade; and in the following year, when the exports of farm produce declined, $15,841,616 of that specie returned whence it came. That re-export was, however, much stimulated by the extraordinary political convulsions that overtook Europe in February, 1848. The peculiar theories avowed by the successful revolutionists in relation to property, which was declared to be "robbery," greatly alarmed the public mind, and tended to make French property utterly unsaleable for the moment. The consequence was the most active shipment of money, silver particularly, with which to purchase the cheap goods of France. The panic soon passed, but depression continued under the provisional government, which, in order to encourage industry and employ workpeople, gave the manufacturers orders for goods, and allowed a drawback of 10 per cent. on merchandise exported out of France. This state of affairs caused the importation thence into the United States to be larger. Among the goods so imported was a quantity of Lyons silk, which had been ordered by the government with the view to employ the operatives. As the government had given no directions as to colors, the whole was made up, to the extent of 10,000,000f., in tricolor. A large portion of this was bought by a New York house, and gentlemen's coats for a long time had tricolor sleeve linings. With the institution of the new government in France, confidence returned, and new branches of trade were opened with France, as well as other countries of the continent, which began to be rivals for the American trade. The Germans and Belgians had so far advanced in the production of certain manufactures, as to dispute the French and English pretensions to supply the United States, and credits began once more to form the medium of extended sales of foreign merchandise. The competition was now, however, far more severe with the home manufactures, which were so far advanced as not only to maintain themselves against new competition, but to drive out those which had long held the field in particular goods. The balance of the ten years' business was, notwithstanding, very small. The period closed, however, with one of the most remarkable discoveries of modern times. We allude to the gold discoveries in California. The war, which carried Americans to California, gave them the opportunity to discover, and the "dust" was soon detected in the neighborhood of Captain Sutter's fort. The intelligence was received with great incredulity. The learned said the location and character of the gold was contrary to all precedent; but soon the metal came, and was satisfactorily assayed. Each successive arrival brought stronger confirmation, and about $9,000,000 worth was received in 1850. Since then, the amount received has been nearly $50,000,000 worth per annum.

The decade ending with 1860 was one of the most extraordinary in the history of commerce. It commenced with a confirmation of the astounding gold discoveries in California, followed by as important a discovery of the same nature in Australia. These events deeply stirred the commercial mind throughout the world, coming, as they did, at the moment when the political difficulties of Europe had settled down in a manner to win public confidence in continued peace and security. The discovery of such large supplies of gold induced the general belief that the metal would depreciate, as compared with commodities and silver, and that the depreciation would manifest itself in a rise in prices of all industrial products. Serious apprehensions were entertained through this superficial view of the case, particularly in Europe, where a large class are rich on fixed annuities, or in the receipt of a fixed amount of money per annum. If all property was to rise in value, leaving the amount of rents the same in money, it would be equivalent to ruining creditors for the benefit of debtors. Thus, if a farmer had mortgaged his farm for say $5,000, the annual interest at 6 per ct. would be $300; at an average price of $1 per bushel for wheat, it would require 300 bushels per annum to pay the interest, and ultimately 5,000 bushels to pay the principal. If the mortgage run five

years, he would be required to give, altogether, 1,500 bushels for interest, and 5,000 bushels for principal—together, 6,500 bushels. If, through the influx of gold, prices came permanently to be $2 for wheat, it would at once reduce the quantity per annum that he would have to pay to 150 bushels, and the ultimate amount for principal to 2,500: in other words, he would save half his grain, at the expense of his creditor, and the money value of his farm would be doubled. This would be of no benefit to him, beyond the discharge of his debt, because the value of all that he had to purchase would rise in the same proportion. All creditors would lose half that was due them. This was an important consideration for the debt-covered countries of Europe, where so large a portion of the people are creditors of the governments. In Holland, to avoid this, they passed a law doing away with gold as a legal tender, and making silver the only medium of payment, under the impression that silver would rise in the same proportion as other commodities. In the United States, the same impressions were entertained, but the event showed that the fears were groundless. But this view naturally stimulated the production of commodities that were to rise in value, and industry became unusually active, since all classes wished to profit by the anticipated rise. Above all, commercial enterprise and migration tended strongly to the gold countries, the direct source of the anticipated benefits. A vast amount of capital was sent to both California and Australia. The United States shipped to the latter country, in 1853, a large amount of goods; and to California the drain continued on a very extensive scale, with small remuneration to the shippers. The production of California gold has been $600,000,000, and it has cost an equal amount of capital. In other words, there has been no profit on the production. The capital that it cost exists in the gold itself, and in the cities and property of California. From nearly all nations the capital that now constitutes the wealth of California, flowed thither in exchange for the gold. While this great enterprise of gold digging has been in direct prosecution, another equally as extensive was undertaken, viz.: the construction of 20,000 miles of railroads, at a cost of $720,000,000. The capital for the enterprise was drawn from Europe, in the shape of money and iron, and from the eastern states, in subscriptions to stocks and bonds. These have not all turned out well, but the capital expended remains in the shape of railroads that are now ready and efficient means of developing future trade. The speculative investments in lands and western property also ran to an inordinate extent in the same period, and nearly $500,000,000, on the best estimates, took this direction, following the trail of American migration, from the eastern to the western states, impelled by the large immigration from Europe. As we have seen elsewhere, 2,518,054 persons arrived from abroad in the period here mentioned. These persons brought with them, at the usual estimate of $100 per head, $251,805,400 in capital, as money and goods. A large portion of this was expended in transportation expenses and in settling new homes. We have, then, the following estimated items of extraordinary expenditures in the ten years, 1850 to 1860:—

Capital sent to California	$600,000,000
" spent in 20,000 miles of railroad	720,000,000
" expended in land operations	500,000,000
" expended by newly-arrived immigrants at fifty dollars each	125,900,000
Total extraordinary expenditures	$1,945,900,000

The 300,000 persons who went to California to consume the capital sent thither, returned $600,000,000 worth of gold, of which a large portion went to Europe, whence goods came. The railroad expenditure results in effective investments in trade. The land investments are not "active," for the present, but are not entirely lost. The immigrants are mostly at work, producing capital in new states.

While these large expenditures took place in the United States, Europe incurred a heavy loss in the failure of her corn harvests, that she was obliged to make good from the corn crops of the United States. She also incurred a heavy expense in the Russian war, which returned very little for the investment, but which required a larger supply of American produce, particularly pork, whiskey, but of gold, above all. The loss of her vine crops, also, brought American whiskey in demand, as a substitute, and thereby, possibly, cut off permanently a supply of genuine grape liquors for the United States. Those events caused a larger demand for produce, at a time when the expenditures for gold, rails, and land were so active. It is not a matter of surprise, under all these circumstances, that the gold diggers, road

builders, speculators, and emigrants, so well supplied with money, should require a larger quantity of goods, both manufactured and imported, while similar activity in Europe, in addition to war and short crops, demanded more raw materials. The import and export table, therefore, shows higher figures than ever before, as follows:—

	Exports.				Of these amounts. Specie.	
	Domestic.	Foreign.	Total.	Imports.	Exports.	Imports.
1851,	$196,689,718	$21,698,293	$218,388,011	$216,224,992	$29,472,752	$5,453,592
1852,	192,368,984	17,289,382	209,658,366	212,945,442	42,674,135	5,505,044
1853,	213,417,697	17,558,460	230,976,157	267,978,647	27,486,875	4,201,382
1854,	253,390,870	24,850,194	278,241,064	304,562,381	41,422,423	6,958,184
1855,	246,708,553	28,448,293	275,156,846	261,468,520	56,347,343	3,659,812
1856,	310,586,330	16,378,578	326,964,908	314,639,942	45,745,485	4,207,632
1857,	338,985,065	23,975,617	362,960,682	360,890,141	69,136,922	12,461,799
1858,	293,758,279	30,886,142	324,644,421	282,613,150	52,633,147	19,274,496
1859,	335,894,385	20,865,077	356,759,462	338,768,130	63,887,411	7,434,789
1860,	385,000,000	25,000,000	410,500,000	444,500,000	78,500,000	7,000,000
	$2,766,799,881	$226,950,036	$2,993,749,917	$3,004,591,285	$507,306,493	$76,156,730

The imports rose steadily to over $300,000,000 in 1854, under the first Australian and Californian excitement, and took larger dimensions as the railroad operations progressed. Railroad iron figured largely in the amount in exchange for bonds. The imports of silks rose from $13,731,000, in 1850, to $30,636,000. The most remarkable rise in the importation was, however, in sugar, which, from $11,000,000, rose to nearly $55,000,000, in 1857, in consequence of the failure of the Louisiana crop, at a moment of very active demand. So high a figure to be paid for sugar at a critical moment went far to disturb the exchanges, and aid the panic of 1857. We find that the whole amount of importations for the ten years reached $3,004,591,285, exceeding, by $1,736,807,503, the importations of the previous ten years. This excess of expenditure corresponds with the estimated amount of capital expended for extraordinary purposes, since a considerable portion of the expenditures was applied to domestic manufactures. The operation of the treaty with Canada produced a somewhat larger receipt of foreign goods. These also swelled proportionately the aggregate imports. The excitement manifest in the United States in regard to gold and railroads, was also present in England and Europe. The production of manufactured wares to send to the gold countries, and to avail of the local demand for goods, required more raw material, at a moment when the short harvests and war enterprise enhanced general wants. The effect of these was equivalent to a large transfer of capital to the west, not only from Europe, but also from those eastern states that are usually buyers of food. Thus the wheat crop of the United States in 1850, by census, was equal to 22,000,000 bbls of flour. The average export price in that year was $5, giving to the crop a value of $110,000,000. In 1855, the average price was $10, giving a value of $110,000,000 greater. This sum was taken out of the pockets of the food buyers, to the profit of the food sellers, at the moment when the latter were enjoying so large an expenditure for other purposes. The export value of agriculture rose from $24,309,210, in 1850, to $77,686,455, in 1856. The great activity of the years ending with 1857 was, then, due to heavy expenditure of capital at the west simultaneously with profitable sales of its crops. The panic of that year caused not only a total cessation of the expenditure, but an earnest desire to recover capital invested at the west. Railroad building stopped, migration ceased, speculation was at an end, and, at the same moment, European crops being good, prices of produce fell in face of very poor western harvests. With this combination of circumstances, the decade closed under a sort of paralysis. There was no exhaustion of capital, since it was apparently more abundant and cheaper at the great eastern reservoirs than ever before; but the stimulus to its employment was gone, and it accumulated in first hands. The broad lands of the west are well settled; they are well supplied with means of communication, and are ready to throw out limitless supplies of capital, when the wheel is once more in motion.

If we bring together by recapitulation the aggregates of the seven decades since the formation of the government, we shall

have a very interesting synopsis of the national progress in respect of commerce. The treasury department has also caused to be prepared, with great care, the annual value of agricultural products and manufacturing industry at corresponding periods. If we add them to the table, it will be so much the more complete, as follows:—

	Exports for periods of ten years.			Imports.	Manufactures. Annual value.	Agriculture. Annual value.
	Domestic.	Foreign.	Total.			
1800,	$293,634,645	$191,344,293	$484,968,938	$591,845,454	..	..
1810,	383,401,077	372,536,294	755,937,371	927,663,500	$145,385,906	..
1820,	462,701,288	127,190,714	589,892,002	688,120,347	62,766,385	..
1830,	536,104,918	229,643,834	765,748,752	798,633,427	111,645,466	..
1840,	892,889,909	199,451,994	1,092,341,903	1,302,476,084	483,278,215	$621,163,977
1850,	1,131,458,801	129,105,782	1,260,564,583	1,267,783,782	1,055,595,899	994,093,842
1860,	2,766,799,881	226,950,036	2,993,749,917	3,004,591,285	2,000,000,000	1,910,000,000
	$6,466,990,519	$1,476,222,947	$7,943,203,466	$8,581,113,879		

This table, mostly official, gives the extraordinary results of a nation's industry and commerce in a period of seventy years. The growth has such an accumulative force, as to be very surprising. In the item of re-exports of foreign goods, the trade never recovered the figures they touched at the period when American vessels did the carrying trade for fighting Europe. Latterly, however, under the warehouse system of the United States, and the reciprocity treaty with the British provinces, some increase in that respect has taken place, the more so that steam and extended relations are opening to the United States a larger share of the South American trade, tending ultimately to give the United States the preponderating influence. The exports of domestic goods grow rapidly under the more extended demand for cotton throughout the world, and of which the United States is the only source of supply. All other cotton countries, India particularly, require more cotton in the shape of goods than they supply in the raw state. The demand for cotton clothing increases in the double ratio of greater numbers and greater wealth throughout the world. Cotton is, however, not the only article which increases in export value. The tables show us that gold has figured in ten years for $507,000,000 as an article of export, and will probably never be less. The agricultural resources of this country have just begun to be developed. Up to 1842 there was, under the restrictive systems of Europe, comparatively no market for American farm produce. In that year the statesmen of England recognized the fact that the demands of English workpeople for food had outgrown the ability of the British islands to supply it on terms as low as it could be bought elsewhere. They therefore removed the prohibition upon the import of cattle and provisions, and reduced the duty on grain. This opened a market for American produce, which grew rapidly. The circumstances of the famine of 1846 justified the wisdom of the English government, and led to the entire removal of the corn duties in 1849. That example was followed by France and her neighbors. France, however, restored the duties in 1859. The liberal legislation of England, the famine, the wars, and speculations of Europe, have gradually extended the demand for American produce, at the time when a very broad field had been opened to supply that demand. This we may illustrate. The area of Great Britain's industry—hills, lakes, vales, and valleys—is 53,760,000 acres; and the population in 1812, when she made war on us, was 11,991,107. Now we find from the table of land sales, elsewhere given, that the federal government has sold in the last twenty years selected farm lands to the extent of 68,655,203 acres, and has given to railroads 42,000,000 acres more of selected lands, making 110,000,000 acres that have mostly passed into the hands of settlers. This is a surface double the whole area of Great Britain; and the population on that area has increased, in the same time, 11,374,595, or a number nearly as large as that of Great Britain in 1812. There have been built on that area in the last ten years, and are now in operation, 20,000 miles of railroads, crossing every part of it, and bringing every farm within reach of a market. The speculators and road builders, who ate up the produce of that area, during the process of road construction, have vanished, and the whole is now offered by a hundred channels to the best bidders of Europe. We have said that corn is the settler's capital, and that corn in the shape of grain, pork, and whiskey, are the staple

exports of a new country. The corn product of 1855, per census report, was 600,000,000 bushels. The number of hogs packed that year was 2,489,050, averaging 200 lbs. each, and giving a total weight of 497,900,000 lbs. of pork. In that year the weight of pork exported was 164,374,681 lbs. Of this amount, 58,526,683 lbs. went to England, or 12 per cent. of the whole production, as the result of her more liberal policy of 1842.

QUANTITIES OF CORN AND PORK EXPORTED TO GREAT BRITAIN.

	Pork. barrels.	Hams and bacon. lbs.	Lard. lbs.	Corn. bushels.	Wheat. bushels.	Flour. barrels.
1840,	..	1,061	..	104,341	615,972	620,919
1841,	4,769	26,394	444,305	12,548	119,854	208,984
1842,	6,900	160,274	3,430,732	123,665	143,300	208,024
1847,	73,940	14,367,105	17,798,770	15,526,525	4,399,951	2,457,076
1848,	87,760	29,218,462	27,283,741	5,062,220	2,034,704	958,744
1849,	111,385	53,150,465	21,388,265	12,392,242	608,661	953,815
1855,	64,663	30,240,161	15,349,922	5,935,284	8,036,665	2,026,121
1858,	13,578	15,365,524	10,288,474	3,215,198	8,926,196	3,512,169

The cotton, tobacco, and rice of the south, the farm produce of the west, and the gold of California, each contributed an increasing proportion to the general exports; but manufactures have also come to figure largely in the general aggregate.

The following table gives the proportions in which the general heads of exports have contributed from time to time to the result, since the formation of the government; and also the total exports, including all articles:—

HEADS OF EXPORTS.

	Cotton.	Tobacco and rice.	Flour and provisions.	Manufactures.	United States specie.	Total of all domestic exports.
1790,	$42,285	$6,103,363	$5,991,171	..	..	$19,666,000
1803,	7,920,000	8,664,000	15,050,000	$2,000,000	..	42,205,961
1807,	14,232,000	7,783,000	15,706,000	2,309,000	..	48,699,592
1816,	24,106,000	15,187,880	20,587,376	2,331,000	..	64,781,896
1821,	20,157,484	7,143,349	12,341,360	2,752,631	$10,478,059	43,671,894
1831,	31,724,682	6,908,655	12,424,701	5,086,890	9,014,931	61,277,057
1836,	71,284,925	12,607,390	9,588,359	6,107,528	345,738	106,916,680
1842,	47,593,464	11,448,142	16,902,876	7,102,101	1,172,077	92,969,996
1847,	53,415,848	10,848,982	68,701,921	10,351,364	2,620	150,637,464
1851,	112,315,317	11,390,148	21,948,651	20,136,967	18,069,580	196,689,718
1854,	93,596,220	12,182,204	65,941,323	26,849,411	38,234,566	253,390,870
1859,	161,434,923	23,281,186	37,987,395	32,471,927	60,110,000	335,894,385

These general heads represent all parts of the Union—cotton and tobacco in the south, flour and provisions in the west, manufactures in the east, and gold in the Pacific states. It is difficult to see any great difference in the prosperity which may attend each in the future. The south is most secure in its market, holding, as it does, an absolute monopoly of a raw material, which is indispensable to the industry of 5,000,000 people at home and abroad, without which $500,000,000 employed in manufactures would be valueless, and without which a large portion of the clothing of civilized man would fall short. The peril of this position to manufacturers, operatives, and merchants is apparent to statesmen, and the utmost efforts are vainly made to find a remedy. The greater the exertion used, the more dependent are the manufacturers on the south. India was long the hope of England, but there are 120,000,000 persons in India whose scanty hand-spun clothing is composed of cotton. Every effort to improve their condition, and to induce a larger culture of cotton, has but one result—viz.: to create a larger demand for cotton *machine* clothing from them; and the dependence upon the United States is the greater. The import of cotton from India has been the cry for thirty years. What is the result? English official returns give the following figures for 1859:—

	lbs.
Import of raw cotton from India, 1859,	192,330,880
Export of cotton goods to India, "	193,603,270
Excess of cotton sent to India,..	1,272,390

The field for the extension of the machine goods in China and India is limited only by the means of the people to buy. The more those means are increased, the greater is the demand for the raw material; and the value of cotton rises annually on that basis. The

productions of the west are more exposed to rivalry than those of the south; but since the formation of the present government, England and western Europe, from being large food exporters, have come, by the growth of manufactures, to be large food importers, and their supplies are drawn more steadily from eastern Europe. Those resources are coming to be narrowed, for the same reason. The United States, on the other hand, with their immense plains and growing means of communication, are assuming a more regular position as a source of supply, which will annually swell the exports. The column of manufactures is a gratifying evidence that the colonial position is at last overcome; that the requisite skill and capital for manufacturing against all rivalry are at last acquired, and that American industry now finds sale in the markets of the world. The South American countries offer the legitimate opening for that sale. The gold of California is always a merchantable commodity, and must sell under all circumstances.

The internal production of wares has increased in a ratio more rapid than even the importation of them. The annual production rose from 62,000,000 in 1820 to 1,055,000,000 in 1850, as manifest in the column of manufactures reported in the above table. In order to manufacture to advantage, something besides a law is necessary. There must be capital and a supply of skilled labor. Those, in the long race of a thousand years, grew up in England, where the system of manufactures is mostly individual. A man learns his trade, and devotes himself to the production of an article, or a part of an article, and by the constant exercise of intelligence and economy, he comes finally to perfect it in the cheapest manner. These productions are combined by other parties into merchantable commodities. In the United States it was a consequence of the prohibition under the imperial government, that these individual industries did not grow up. There were no factories in which young artisans were learning a business, and when separation took place there was no experienced labor. When, therefore, the capital that had been earned in commerce was suddenly applied to manufactures, the only mode of proceeding was the corporate mode; the capital was subscribed by a company, and the works directed by persons often of little practical experience. Under such a system, progress was difficult. With the large immigration of skilled workmen from abroad, however, a greater breadth has been given to all branches, and progress is very rapid, the more so that the general prosperity enables consumers to extend the best possible encouragement to producers, by buying their wares. The chief consumers of these have been the agriculturists, and the interchange of manufactures for agriculture forms the chief trade of the whole country. In 1840, per census reports, the value of manufactures was $483,278,215, and of agriculture, $621,163,977; the imports were $107,000,000. The interchange of these commodities, at first hands, would involve an aggregate trade of $1,211,442,192. The same items for 1850 would give an aggregate of $2,305,343,446—nearly double the amount. But the raw material passes through many hands before it reaches the manufacturer, and his wares pass through a succession of merchants, jobbers, and retailers before they are finally consumed. Grain passes through many hands before it is finally eaten. The grinding of flour is one of the largest manufactures of the country, turning out in 1850, $136,056,736 per annum. It is probable that each of the articles which form the aggregate of the mining, manufactures, agriculture, and imports, is sold four or five times before it is finally consumed. This would give an aggregate trade of $10,000,000,000 per annum, in 1850, against $6,000,000,000 in 1840, or an average of $2,000 per annum for every effective man in the country. This seems very large. If, however, we have recourse to the circular of the leading mercantile agency in New York, whose ramifications extend over the Union, we find they report upon their books, 250,000 firms in business in 1857—the panic year; of these firms in business 4,932 failed in 1857, for an aggregate of $291,750,000 of liabilities, or an average of $58,350 each. If the average of all the persons doing business was only $50,000, or $8,350 each less than those who failed, then the aggregate amount of credits must have been $12,500,000,000 in 1857. The firms on the books do not include the retailers to any great extent. Thus the liabilities of 1857 far exceed the estimate we made on the figures of 1850. Again, the bank discounts in the past year are $637,183,899; these purport to represent bills not more than sixty days to run. The average of some of the largest city banks is fifty-four days; at sixty days the

amount of discounts for a year would be, in round numbers, $4,000,000,000; and the exchanges at the New York clearing-house, as we see in another chapter, are over $8,000,000,000 per annum. These figures give some idea of the vastness of that immense traffic, which consists in the interchange of the products of industry. In 1840, the active bank loans were $278,000,000, which, at the same average time, would give $1,668,000,000 of discounts for the year, which holds about the same. In 1850, the loans were $413,756,759, which would give an aggregate discount for the year of $2,484,000,000. Comparing these aggregates for several years, we have results as follows:—

	Annual productions.	Annual transactions.	Bank discounts.
1840,	$1,211,442,192	$6,055,000,000	$1,668,000,000
1850,	2,305,343,446	11,525,000,000	2,484,000,000
1860,	4,444,500,000	22,222,500,000	3,943,003,000

We have, then, the fact that the national trade doubled in the ten years ending with 1850, as a consequence of the increased productions of industry; and the best data give the same general results for the decade now closing. These large figures, astonishing as they seem, are not out of proportion to the immense growth of the country in breadth and numbers.

The broad surface of the Union, between the Atlantic and the Mississippi river, is now covered with states. The thirteen colonies that emerged from a war, eighty years since, have grown to be thirty-three states, with a land value of, in round numbers, $9,317,000,000. All this vast territory is now productive, yielding its annual returns, and giving a productive annual capital beyond any thing the world has hitherto witnessed.

The following table gives the states in the order of their admission into the Union, the area in acres, the population of the old states in 1790, and the population and land valuation of each state in 1850, according to United States census; also the same figures from the state censuses made nearest to 1860:—

GROWTH OF THE UNITED STATES.

	Date of admission.	Area in acres.	1790. Population.	1790. Valuation.	1850. Population.	1850. Valuation.	Nearest to 1860. Population.	Nearest to 1860. Valuation.
Delaware	1787	1,356,500	59,096	4,058,238	91,532	15,896,870	99,100	30,466,924
Pennsylvania	1787	30,080,000	434,373	72,824,252	2,311,786	500,275,851	2,634,161	568,770,234
New Jersey	1787	4,884,640	184,139	27,287,981	489,555	158,251,619	605,201	179,150,000
Georgia	1788	37,120,000	82,548	10,268,506	906,185	121,619,729	1,024,000	337,969,471
Connecticut	1788	3,040,000	238,141	46,162,955	370,792	119,088,672	413,167	211,187,683
Massachusetts	1788	4,640,000	378,717	59,441,642	994,514	551,100,824	1,270,101	597,936,995
Maryland	1788	7,040,000	319,728	21,634,004	583,034	139,026,601	661,920	255,477,588
South Carolina	1788	17,920,000	249,073	12,450,720	668,507	105,737,492	739,000	214,161,201
Rhode Island	1788	763,000	69,110	8,082,355	147,545	77,738,974	173,869	111,175,174
New Hampshire	1788	5,139,200	141,899	19,028,108	317,976	92,251,596	339,666	103,804,326
Virginia	1788	39,265,280	748,308	59,976,869	1,421,661	252,105,824	1,591,269	730,817,653
New York	1788	29,440,000	340,120	14,885,075	3,097,394	715,369,088	3,729,600	1,404,907,679
North Carolina	1789	29,120,000	393,751	27,909,479	869,039	71,702,740	956,790	271,781,101
District of Columbia	1790	32,000	..	..	51,687	14,409,413	64,189	20,271,000
Vermont	1791	5,129,000	85,416	15,165,484	314,120	72,980,483	328,600	86,775,213
Kentucky	1792	24,115,200	73,077	20,268,325	982,405	177,013,407	1,243,980	334,770,791
Tennessee	1796	28,160,000	35,791	5,847,662	1,002,717	107,981,798	1,286,530	266,249,384
Total old states		265,786,120	3,893,287		14,620,449	$3,287,570,916	17,610,964	$5,755,612,327
Ohio	1802	25,576,960	..	..	1,980,329	433,872,632	2,480,100	840,800,021
Louisiana	1812	29,715,840	..	..	517,762	176,623,654	646,971	378,911,905
Indiana	1816	21,637,760	..	..	988,416	142,870,399	1,290,108	313,204,964
Mississippi	1817	30,174,080	..	..	606,526	85,901,204	734,228	161,747,586
Illinois	1818	35,459,200	..	..	851,470	114,782,646	1,601,200	407,477,367
Alabama	1819	32,462,080	..	..	771,623	98,876,118	911,785	201,100,100
Maine	1820	22,400,000	96,540	..	583,169	96,799,513	662,000	162,472,914
Missouri	1821	43,123,200	..	..	682,044	86,302,101	888,540	274,965,164
Arkansas	1836	33,406,720	..	..	209,897	29,372,101	331,213	68,255,711
Michigan	1837	35,995,520	..	..	397,654	30,877,223	581,810	120,362,474
Florida	1845	37,981,520	..	..	87,445	10,924,107	125,700	22,210,915
Texas	1845	152,043,520	..	..	212,592	30,149,671	512,237	188,722,433
Iowa	1846	35,155,200	..	..	192,214	23,714,638	630,500	197,223,350
Wisconsin	1848	34,511,360	..	..	305,391	26,715,525	650,000	152,537,700
California	1850	120,947,840	..	..	92,597	21,928,173	360,000	131,396,269
Minnesota	1857	90,774,960	..	..	6,077	262,068	150,042	781,101
Total new states		781,285,760			8,485,206	1,411,466,792	12,601,434	3,562,079,984
Grand total		1,048,021,890	3,929,827	$479,245,636	23,105,655	$4,699,081,708	30,212,398	$9,317,692,261

In addition to these, New Mexico had, in 1850, 61,547; Oregon, 13,294; Utah, 11,380. The official United States census for 1860 will change the figures for many of the states. The aggregate will not vary much.

CHAPTER III.

SHIPS—TONNAGE—NAVIGATION LAWS.

The appearance of the United States as a nation was fraught with the most extraordinary results in respect to the condition, policy, and governments of Europe, but in none greater than in respect of navigation. From the moment that the stars and stripes floated from the mast-head of a merchantman, a revolution was commenced which has not yet ceased its influence upon the commerce of the world. Up to that time, England had gradually attained the supremacy of the seas. The Dutch, who had fought a steady battle with the ocean, until they had driven it back and fortified their country by dykes from its invasion, had earned a right to rule; which, by their energy, they did for a time. Their country was small, however, and produced but little: hence, there was no room to support commerce in the face of the power of England. Great Britain is an island of great productive power, although but little larger than New York. Its coast is indented on all sides with good harbors; and from which side soever the wind blows, it is fair for some of her vessels to arrive, and others to depart. A sea-girt population is necessarily a nautical population. The English were peculiarly fitted for sea adventure; and with such advantages, added to their skill in building, they could not fail to acquire ascendancy upon the ocean, which their large population maintained and fed by planting colonies in all parts of the world. When the commerce of England had well grown, as a consequence of these advantages, her government, in the hands of Cromwell, sought to increase it by enacting the famous "navigation law," which was popular, because it professed to give England the supremacy of the ocean. The principle of the law was, that no goods should be imported into England from Asia, Africa, or America, except in British vessels; that goods imported from Europe in European vessels should pay more than if imported in British vessels. This was very plausible. It would, it was supposed, give England the world's commerce; but as there then existed none but British vessels in either of the three continents out of Europe, there was no more trade, in consequence of the law, than before. The law was a dead letter. The growth of English commerce was evidently great. The statesmen of Europe ascribed it rather to the law than to the circumstances of the people, and they imitated its provisions. The trade between England and her colonies was large, but the vessels were all British. The development of this industry of the North American colonies, and their trade, was probably the first real opposition on the ocean that the Dutch received. So much did it flourish in the seventeenth century, that Sir Joshua Childs, writing in 1670, states that "Our American plantations employ nearly two-thirds of our English shipping, and thereby give constant subsistence to, it may be, 200,000 persons here at home." Ship-building had been pursued with great success in the colonies; and the genius of the colonists had already given them a distinctive character. On the declaration of peace, in 1783, that "bit of striped bunting" was found floating at the gaff of all the best vessels. They, by the law, could now carry no goods to England. The large exports of the United States were now to go in the worst vessels, because they were English. The United States immediately passed a similar law, that forbade any goods to be imported, except in American vessels. The American vessel then went out in ballast to bring home English goods, and the English vessel came out in ballast to carry home American produce. Two ships were employed to do the work of one, and all imports and exports were charged two freights. This was too absurd, even for statesmen. A treaty was consequently made, by which the vessels of both nations were placed upon the same footing. The practical effect of this was to double the quantity of tonnage employed, since the vessels of both nations could now carry freights both ways. The position of affairs was, however, entirely new. The United States—a young country, with few ships and less capital, distributed among a sparse population—presented itself to the old, wealthy, and aristocratic governments of Europe, and demanded of them that they should admit its ships to visit their populous and wealthy cities, in return for the privilege of their visiting the comparatively poor and unattractive towns of the states. This kind of reciprocal intercourse had never existed; and the United States now came forward to propose it, and to lay down principles for its guidance. Their moral influence caused them to be adopted. These principles were, "independence," "equal

favor," and "reciprocity." These principles were first laid down in the treaty made between France and the United States in 1778, and they became the basis of all subsequent negotiations. The commercial sagacity of the English prompted them to accede at once. The United States vessels were accordingly placed upon the footing of the "most favored nation." From the moment the United States entered that wedge, the whole system of exclusiveness began to fall to pieces. There are now forty-eight treaties between the United States and other countries, most of them containing the favored nation clause. The benefits of this example have been so fruitful, that all the nations of Europe have eaten through their old restrictive systems, by similar treaties with each other. Although England was forced into this concession in her direct trade, she, for a long time, refused it in respect of her colonies. It was reserved for a later period to force her into that movement. The vessels of the United States having thus gained an international footing, events supervened to give a great impulse to their employment in the carrying trade. In colonial times, Massachusetts Bay was the chief theatre for ship-building, but Maryland was also noted for it. The vessels built in 1771 were as follows:—

AN ACCOUNT OF THE NUMBER AND TONNAGE OF VESSELS BUILT IN THE SEVERAL PROVINCES IN THE YEAR 1771.

	Square-rigged vessels.	Sloops and schooners.	Tonnage.
New Hampshire	15	40	4,991
Massachusetts Bay	42	83	7,704
Rhode Island	15	60	2,148
Connecticut	7	39	1,483
New York	9	28	1,698
New Jersey		2	70
Pennsylvania	15	6	1,307
Maryland	10	8	1,645
Virginia	10	9	1,678
North Carolina		8	241
South Carolina	3	4	560
Georgia	2	4	543
Total	128	291	24,068

The tonnage entered and cleared for the year 1771, to all ports, was as follows:—

	Cleared from colonies.	Entered colonies.
Great Britain	98,025	82,934
Southern Europe	37,237	37,717
West Indies	108,150	106,713
South and Central America	107,552	104,578
	350,964	331,942

This was before the war. After the war, the trade received a great development from the French treaty of 1778, and from that with Great Britain. The ship-building during the colonial period had been in very different styles, so that every seaman, at a glance, could recognize the origin of the vessel. The Baltimore clipper, the Essex fishing schooner, the Chesapeake schooner, the down east lumber schooner, or brig, the Hudson river sloop, the Long Island sloop, the Newport boat, the Massachusetts Bay dory, were distinct types, and still preserve their styles to some extent, although the march of improvement has tended to assimilate all styles, by combining their good points. The changes of trade have varied the demand, and since California has brought clippers in demand, they are now by no means a Baltimore peculiarity. The fishing vessels were peculiarly adapted to their employment. The fisheries were the chief business of the northern colonists, and they had not only the benefit of the large sale to the West Indies and to the Catholic countries of Europe, but the eating of fish in England had, by the law of Elizabeth, in 1563, been ordered on Wednesdays and Saturdays, for the encouragement of seamen, thus affording a large market, from which foreign fish were excluded. The same law became a custom down to our day, it being still almost universal in New England to eat fish on Saturday. Indeed, so strictly was this custom observed, that in the old slave days of Massachusetts, it being ordered that slaves should not be in the streets on Sunday, a black was arrested on the common. He denied that it was Sunday, and proved his point by showing that "massa no eat salt fish yesterday." The fisheries were thought to be the nursery of seamen, and when the Union was formed, a law of July 4, 1789, allowed a drawback on fish exported equal to the supposed quantity of salt used. This law, in 1792, was changed to a bounty per ton on the vessels engaged in the fisheries, and has been continued down to the present time. The number of tons now in the cod fisheries is 129,637, and the bounty paid to the interest from the origin of the grant to the close of the year 1859, amounts to $12,944,998, of which Maine, New Hampshire, and Massachusetts received nearly the whole. It is to be remarked that this bounty-fed interest has prospered less than any other. The whale fishery seemed peculiarly adapted to the skill and daring of the American seamen. The whale boats were of a peculiar build, and gradually, although they

received no protection from the government, they drove away other nations from the seas. The interest is, however, depressed, from the growing scarcity of whales, and the great competition that its product receives from other sources. The making of lard oil brought "prairie whales" into effectual competition with those of the ocean.

The tonnage engaged in the foreign trade increased up to 1810 very rapidly under the influence of the carrying enjoyed under the treaties with Europe, and the effect of the wars between the great powers. The coasting trade did not increase in the same ratio, for the reason that the trade enjoyed by the registered tonnage was not the carrying of American goods, but of foreign products from colonies to Europe. The comparative increase of the tonnage is seen as follows:—

	Registered tons.	Coasting.	Whalers. tons.	Cod fishery.	Mackerel fishery.	Steam. Ocean.	Steam. Coasting.	Total.
1789,	123,893	68,607	...	9,062	..	..	..	201,562
1810,	984,269	405,347	1,227	35,162	..	..	..	1,424,789
1821,	619,896	559,435	27,994	51,351	..	..	..	1,298,958
1829,	650,143	508,858	57,278	101,797	35,973	..	54,036	1,260,797
1840,	899,764	1,176,694	136,926	76,035	28,269	..	281,339	2,180,764
1850,	1,585,711	1,755,796	146,016	85,646	58,111	44,942	481,004	3,535,454
1858,	2,223,121	1,710,332	198,593	110,896	29,593	78,027	651,363	5,049,808

This table gives a sort of chart of the whole progress of the tonnage. It is observable that up to the close of the first period, viz.: to the embargo and non-intercourse of 1809, the registered tonnage, or that engaged in the foreign trade, increased most rapidly; there were then no large home productions to require much inland transportation, and the carrying trade of Europe was very active. With the growth of cotton, however, an immense freight was given as well to coasting as to registered tonnage, and that was far more valuable to the latter than the carrying trade which had been lost. When the war and non-intercourse stopped the growth of external tonnage, a great impulse was given to that of the interior. The lakes and rivers began to be covered with craft, which swelled the enrolled tonnage. In the south a good portion of this tonnage was employed in the transportation of cotton to the seaboard, where it was freighted to Europe in registered vessels. The operation of the laws in relation to the measuring of vessels had an injurious influence upon the form. The making the beam of the vessel an element in the calculation of the tonnage she would carry, led to the construction of "kettle bottoms," which swelled out in the form of a kettle, allowing her to carry much more than her register showed. These vessels carried cotton mostly to European ports, whence there was little return cargo; but when, after the war, migration set in freely from Havre, affording a return freight, the form was altered to give accommodation to the passengers, and an impulse was given to ship-building. The latter branch of industry languished up to 1829, since there was little carrying trade, and the cotton crop was only one-fourth its present quantity. The British government had refused to allow the West India colonies to be open to American vessels. The West Indies, however, were dependent upon the United States for supplies of produce, while they were required to send their own sugar, coffee, and rum to the mother country in British vessels. By refusing to let American vessels go thither, she sought to secure three freights for British ships. Thus, a vessel left England with goods for the United States, then loaded provisions for the West Indies, and took home thence sugar, etc., to England, making a round voyage. This the United States refused to permit, unless American vessels participated; and the trade was closed. The English colonists, deprived of American supplies, set up a clamor which compelled the government to open certain ports to American ships on the same terms as British ships; and Congress, in return, authorized the President, by proclamation, to open United States ports to colonial vessels, whenever he should have proof of a reciprocal movement. This took place in 1830, and the trade has rapidly increased since.

The increase of registered tonnage, as of all others, had been large up to 1840, under the general animation that trade encountered from the speculative action of those years. Two circumstances had, however, occurred to enhance the demand for shipping. These were the English-China war, and the American-Mexican war. The attempts of the English to force the opium trade upon the

Chinese, contrary to their laws, had induced the Chinese, in 1841, to destroy a large quantity of opium. This brought on the war, which resulted in the opening of five Chinese ports to the commerce of the world, and by so doing had increased the demand for American ships—always favorites with the merchants in the trade between India and China. One result of the English war with the Chinese was the negotiation of a treaty of a very favorable nature between the United States and the Chinese government. The great success of the Americans in that respect was a matter of envy upon the part of the English; but it was not a matter of surprise, that since the Chinese were compelled to open their ports to trade, they should favor those who had been friendly rather than their victors. The Americans and English had long traded together, and their nationality had long been a puzzle to John Chinaman. As far as he could see, they both spoke the same language, although they sailed under different flags; but, with his natural acuteness, he had observed that the "red-haired devils" had more capital than the Americans; he consequently classified the latter as "second-chop Englishmen." He was now, however, not sorry to give them the advantage in the treaty negotiated by General Cushing, or, as they styled him, Ku-ching. The return of that minister to the United States across Mexico was attended with a new insult from that people, who robbed him of his baggage. Subsequently, the long train of insults heaped upon Americans through the recklessness and arrogance of the Mexicans, ended in a war in 1846. That event caused a large demand for shipping on the part of the government, for transports. The expedition fitted out under General Scott for Vera Cruz, was the largest naval enterprise ever undertaken by any nation up to that time—that is, a like number of troops had never before been transported so great a distance by sea to open a campaign in an enemy's country. The British and French expedition from Varna to the Crimea, ten years afterward, was no greater in magnitude, although greatly trumpeted by English writers. The American expedition was promptly successful, when even the French had failed in their previous attack upon Vera Cruz. Following these two events, that absorbed so much shipping, came the Irish famine. The same famine, which created the extended demand for American produce, also stimulated a large migration to the United States, furnishing ample freights to the homeward-bound shipping.

The increase of steam tonnage was the most remarkable. The first arrival of a steamer from England was the Sirius, April 23, 1838. That experiment was looked upon with distrust, but it has succeeded so far, that fifteen lines, running forty-five ships, have since been started between the United States and Europe. In July, 1840, the Britannia, the first Cunard boat, arrived at Boston; and that line has continued to be the most uniformly successful up to the present time. The lines that have since been started are as follows:—

New York.	Port.	Style.	Ownership.	Vessels.	Tons.	Average passage out. days.	hours.
Cunard line,	Liverpool,	paddle-wheel,	British,	4	10,360	11	3
" "	Havre,	screw,	"	5	11,800		
Collins "	Liverpool,	paddle-wheel,	American,	3	9,727	12	3
Scotch "	Glasgow,	screw,	British,	3	6,612	13	0
Irish "	Cork,	"	"	2	2,000		
French "	Havre,	"	French,	3	4,500	15	0
Old Havre line,	"	paddle-wheel,	American,	3	7,200	13	6
Vanderbilt "	"	"	"	3	7,600	13	0
Independent line	"	"	"	1	1,800		
Belgian "	Antwerp,	screw,	Belgian	5	12,590		
Bremen "	Bremen,	paddle-wheel,	American,	2	4,000	14	12
Hamburg "	Hamburg	screw,	German,	2	2,400	16	0
Cunard "	Bost'n to L'pool,	paddle-wheel,	British,	4	8,100	11	12
Philadelphia "	Liverpool	screw,	"	3	6,856		
Portland "	"	"	"	2	3,000		
Total				45	98,545		

Such has been the progress of steam between Europe and America. By its influence, time and distance have been reduced one-half, and, as a natural consequence, cap-

ital has been virtually increased, since, by quicker communication, it can be more frequently turned. Many disasters have attended the ocean service of steam; but it has been estimated that since the first steamer arrived, in 1838, 500,000 persons have crossed the Atlantic by steam. Of this number, 2,709 have been lost; giving a chance of loss as one out of 184. The first ocean steamer lost was the President, in 1841, with 130 lives, and $1,200,000. Since then, the losses have been as follows:—

	Ownership.	Lives lost.	Value of vessel and cargo.
President,	British,	130	$1,200,000
Arctic,	American,	300	1,800,000
Pacific,	"	240	2,000,000
San Francisco,	"	160	400,000
Central America,	"	387	2,500,000
Independence,	"	140	100,000
Yankee Blade,	"	75	280,000
City of Glasgow,	British,	420	850,000
Union,	American,	..	300,000
Humboldt,	"	..	1,600,000
Franklin,	"	..	1,900,000
City of Philadelphia,	British,	..	600,000
Tempest,	"	150	300,000
Lyonnais,	French,	160	280,000
Austria,	German,	456	850,000
Canadian,	British,	..	400,000
Argo,	"	..	100,000
Indian,	"	27	125,000
Northerner,	American,	32	75,000
Hungarian,	Brit., (about)	120	270,000
Total		2,709	$15,930,000

Showing that a fleet of twenty fine steamers, many of them first-class, have been totally lost within the period named. The President, Pacific, City of Glasgow, and Tempest, were never heard from; the Arctic, San Francisco, and Central America, foundered; the Independence, Yankee Blade, and Northerner, were wrecked on the Pacific, and the Canadian, Humboldt, Franklin, Argo, and Hungarian, on the Atlantic coast; the Lyonnais was sunk by collision, and the Austria was burnt. Not enumerated in this list are two-thirds as many more, generally of a class much inferior, which were lost in the California trade.

The growth of steam service in the interior of the country was more rapid than its external development. The amount of steam tonnage in ocean navigation, in 1850, was 44,942, against none in 1840. The inland tonnage engaged on lakes, rivers, and coasting, was 481,004—an increase of 283,000 in ten years, at a cost of $28,000,000.

When the western country, with its fertile fields and magnificent water-courses, attracted settlers, and these had produce for sale, there was but one way to market, and flat-bottomed boats, launched upon the descending streams, bore the freights to New Orleans. At that point they were not unfrequently broken up, the owners returning by land. In 1794, two *keel* boats sailed from Cincinnati to Pittsburg, making the trip in four weeks. Each boat was covered, so as to be rifle-proof; was loop-holed for muskets, and six guns, to carry pound balls. It was in this manner that persons and property were protected from Indian aggression. The other western rivers presented similar means of travel. Even this was progress, however; and each year saw the numbers and wealth of the dwellers increase. In 1790 the first sea-going brig was built at Marietta, Ohio. She was called the St. Clair, 120 tons, owned and commanded by Commodore Preble, who descended the Ohio and Mississippi, and arrived, *via* Havana, at Philadelphia, where she was sold. In 1802–4, four ships, three brigs, and three schooners were built at Pittsburg for the Ohio navigation. Keel boats and sea-going vessels rapidly multiplied; but the dangers of the navigation retarded commerce. The dangerous falls of the Ohio were a drawback; and the Kentucky legislature, in 1804, incorporated a company to cut a canal round them. This was, however, not done until 1830. After 1806, the march of commerce and civilization began to make itself felt, and trade was carried on in *keel boats*, which, however comfortably they might float *with the stream*, required three months for a voyage from New Orleans to Cincinnati. The first steamboat on the rivers was built by Fulton at Pittsburg, in 1811. She cost $20,000, and took her first freight and passengers at Natchez, arriving at New Orleans in December. She continued to run three or four years between those points, eight days up and three days down, clearing, the first year, $20,000. Steam tonnage then rapidly multiplied. The annexation of Louisiana, and the events of the war, had greatly stimulated western trade and river tonnage. From the period last named up to the year 1839—a period of twenty-eight years, or thereabout—how do we find the aspect of matters altered? The surface of the "beautiful river," as the French call the Ohio, constantly agitated by the revolutions of paddle-wheels, and its shores decked with cities, towns, and villages, the

appearance of which sufficiently indicated the vast stores of wealth which a thrifty, industrious population was rapidly bringing to light. It is computed that the country drained by the Ohio and its tributaries embraces one-third of Pennsylvania, one-third of Virginia, two-thirds of Ohio, all of Kentucky, three-fourths of Indiana, and one-fourth of Illinois—making an aggregate of 142,000 square miles, or 91,000,000 of acres. The Ohio rises near the 42d degree of north latitude, and empties itself into the Mississippi, near the 37th degree, within which space all the tributaries, with the exception of the great bend of the Tennessee, are circumscribed. The computation of those who owned the first steamboat on this river, made after her first trip, is said to have been, that if 6 cents freight could be obtained on each pound, and *they could get enough to do*, the investment would be a profitable one. The result has shown that freight has been reduced to less than a cent, and that ample employment is afforded for hundreds of boats! The number of steamboats built previous to the year 1835 inclusive, was 588, of which 173 were built at Pittsburg, and 164 at Cincinnati. The number of boats in active business in 1838 was 357, measuring 65,000 tons, or 180 tons each; and, in 1858, the tonnage had increased to 124,941.

The opening of the Erie canal, in 1825, gave a new direction to western produce. The great lakes, from forming a separation from Canada, at once became a means of communication between the inhabitants of the vast circle of their coast and Buffalo, the gateway to the east. Those vast seas form a basin, into which pours from every quarter the produce of eight sovereign states, not including the Canada side. On these lakes a few craft had floated; and in Erie harbor, in 1812, was built, in seventy days from cutting the timber, that remarkable fleet that bore Perry's flag to victory, and made the lakes American seas. Tonnage multiplied as the produce increased, and the construction of the Ohio canals gave a northern direction to it.

Up to 1820 there was but one steamer on the lakes, and not until 1827 did a steamer reach Lake Michigan. In 1832 a steamboat landed troops at Chicago. In 1833 there were on the lakes eleven boats, which had cost $360,000. They carried 61,480 passengers in that year. In 1840 there were forty-eight boats on the lakes, and their value was $2,200,000. In 1859 the number of boats was 186, and the value $3,997,000, including propellers. The amount of tonnage upon the lakes is now as follows:—

STATEMENT SHOWING THE NUMBER, KIND, TONNAGE, AND VALUATION OF VESSELS ENGAGED IN THE COMMERCE OF THE LAKES IN 1859.

AMERICAN BOTTOMS.

Number.	Rig.	Tonnage.	Valuation.
68	Steamers	46,240	1,779,900
118	Propellers	55,557	2,217,100
72	Tugs	7,779	456,500
43	Barques	9,666	482,800
64	Brigs	30,452	456,000
833	Schooners	178,362	4,378,900
1,198	Total	328,156	$9,771,200

CANADIAN BOTTOMS.

Number.	Rig.	Tonnage.	Valuation.
54	Steamers	21,402	989,200
16	Propellers	4,127	140,500
17	Tugs	2,921	184,800
15	Barques	5,720	134,000
14	Brigs	3,295	78,400
197	Schooners	32,198	778,300
313	Total	69,663	$2,305,200

The losses of screw-propellers upon the lakes by wreck and fire, rose from $39,000 in 1848 to $1,159,957 in 1855, and have since diminished to $91,830 last year. The number of vessels lost in ten years was 402, and the value $3,752,131. The number of vessels built in 1858, was 113 on the rivers, and 31 on the lakes.

Broad canals and numerous railroads are always busy delivering upon the bosom of the lakes the wealth annually created by 5,000,000 of people, and valued at hundreds of millions of dollars. The borders of those lakes are dotted with cities, whose marvellous growth has been proportioned to the rapid settlement of the surrounding country. Oswego, Buffalo, Cleveland, Sandusky, Toledo, Monroe, Detroit, St. Joseph, Chicago, Milwaukee, Racine, and many smaller ports, have, like nets, so to speak, accumulated a portion of the vast wealth that has rushed by them over the bosom of the lakes. Each of these cities has a large tonnage employed in the transportation of produce and merchandise; and that tonnage has in the last few years received a new development by the introduction of the newly constructed screws. The invention of Fulton consisted in the adaptation of paddle-wheels to propel vessels. The idea of propelling by a screw in the stern was quite as old as that of the

paddle-wheels; it was not, however, successfully constructed until, in 1839, after many failures by others, Ericsson succeeded. A small iron screw-steamer was built and navigated to this country in 1839, by Capt. Crane, and she became a tug on the Raritan canal. From that time, screws vindicated their value for certain purposes, as superior to paddles. They have lately performed so well as to lead to the impression that they may yet supplant the paddles altogether. This is more particularly the case with inland navigation. The form of the screw has undergone continual changes, to obviate some of the difficulties that presented themselves. The model until recently in use upon the lakes, is the Loper propeller, invented by Capt. Loper, of Philadelphia. The screw was cast in one piece, and of a form that combines many advantages, particularly that of hoisting out of water with a fair wind. Within the last three or four years, however, a Buffalo invention has been introduced, by which the engineer may regulate the "pitch," or angle of the screw blades, according to the circumstances, without taking up the screw. These steam propellers are obviously of a nature to monopolize the trade of the lakes. They make their trips with regularity and promptness. There are now 118 on the lakes, with a tonnage of 55,657; and 68 paddle-wheels, tonnage 46,240. The great progress made in the last ten years in railroads, which have come to rival canals and rivers throughout the west and skirting the lakes, has greatly affected the trade in vessels, as well steam as sail. The introduction of steam lessened the amount of tonnage, because steam can perform more voyages. Railroads have again reduced the quantity of tonnage required, because they run all winter, and at all times with greater speed. While this has been taking place, however, greater facilities for getting to sea have made ship-building on the lakes most active. Several vessels have been built at the lake ports for Liverpool, going down the St. Lawrence, and some schooners have recently been built at Cleveland, to run between Boston and Albany and Chesapeake bay. Those, of about 200 tons, cost $10,000. The advantage of building on the lakes consists in the fact that ship plank is much cheaper, say $20 in Cleveland to $60 in Boston, spars $40 against $100; and the vessel makes a handsome freight in lumber on the voyage out. Nevertheless, in the last two or three years, there has been a decrease of lake tonnage, as well through the competition of the railroads, as the diminished transport of grain, arising from the cessation of the export demand for grain. The wrecks, condemnations, and departures for the ocean, at a time when building is slack, have decreased the actual tonnage. This year the vast crops moving require every available means of transportation.

These circumstances of the increase of the western and lake tonnage, indicate the means by which freights accumulated at the seaports to employ the ocean or registered tonnage, had increased in such rapid proportions in the last nine years. The increase from 1850 to 1858 was, it appears, 637,410 tons, while the sail coasting tonnage actually declined. The discovery of California gold led to the employment of clipper ships for quick passages round the cape, and these, under the pressure of high freights, rapidly multiplied. In 1855, the number of vessels built was 2,034, having a tonnage of 583,450, or a quantity equal to the whole coasting tonnage of the Union in 1830. The tonnage increased too fast, and reaction overtook it. The quantity built in 1859 was only 870 vessels, of 156,602 tons. In ordinary years, cotton is the chief freight of ships, and the ordinary proportion of shipping is as one ton to a bale of cotton produced. The progress of the registered tonnage in the last nine years has been as follows:—

REGISTERED TONNAGE.

	Built.	Lost at sea.	Condemned.	Sold to foreigners.	Increase.
1851,	165,850	23,149	3,801	15,247	123,647
1852,	193,021	28,083	2,060	17,612	145,265
1853,	209,898	33,850	6,400	10,035	159,613
1854,	320,012	53,493	7,448	59,244	199,826
1855,	336,098	46,149	5,696	65,887	218,366
1856,	260,676	58,580	6,992	41,854	153,248
1857,	195,962	63,232	9,371	51,791	71,567
1858,	96,459	46,198	13,699	25,925	10,635

The building under the clipper fever more than doubled from 1851 to 1855. The sales to foreigners have risen to a large item. In the last five years it has amounted to 244,680 tons, or 20 per cent. of the whole quantity built. This, at an average of $100 per ton, amounts to $24,468,000, or yearly average sales of $2,446,800, forming a considerable manufacture. The cheapened cost of building on the lakes and western rivers will transfer to that region much of that trade. The enrolled tonnage has been as follows:—

	Built.	Lost at sea.	Condemned.	Sold.	Increase.
1851,	132,353	7,675	2,047	..	122,631
1852,	158,471	10,857	3,545	309	143,759
1853,	215,673	11,819	3,209	..	200,645
1854,	215,603	9,579	2,064	789	203,170
1855,	247,351	15,068	2,138	..	230,144
1856,	208,717	16,482	4,383	314	187,538
1857,	182,841	19,257	1,877	858	160,848
1858,	145,827	17,263	2,337	378	125,847

The sales of enrolled tonnage are not large, but the trade increases. The supply of tonnage now owned in the United States exceeds, by 5,000,000 tons, the quantity it possessed at the date of the peace. This tonnage, valued at an average of $50 only per ton, gives a value of $250,000,000 created and now drawing good profits.

The development of the United States trade has taken place in the last eighty years; England has been growing in commerce since the conquest. Her flag "has braved a thousand years the battle and the breeze;" and she has planted colonies throughout the world. France was a nation when the Norman William led his bands to the conquest of England; and since the administration of Colbert, under Louis XIV., great efforts have been made to increase French trade. What are then the facts? The United States in eighty years rivals both! In order to compare the development which has taken place in the progress of nations, it is only necessary to take the surplus which each has produced for exportation. The imports are the proceeds which each obtains for what it sells. With this remark we compare the exports, at certain times, of the three nations named, since the United States became a nation. In the table, the year ends June 30 in the United States, and December 31 in France and Great Britain. The French figures are (special commerce) of the exports of French products from France.

NATIONAL EXPORTS.

	United States.	Great Britain.	France.
1800,	$31,480,903	$118,413,084	$53,750,816
1819,	64,974,382	176,057,005	83,095,885
1829,	72,358,671	179,213,115	121,563,730
1839,	121,028,416	266,167,900	188,101,247
1849,	145,755,820	317,980,125	207,281,108
1859,	355,894,385	626,114,049	321,182,291
1860,	373,167,461	664,782,635	424,950,000

This table gives us the fact that during the wars of Europe up to 1819, the United States exports nearly doubled, while those of France and England increased about 60 per cent. In 1819, the peace having become permanent, trade took a new start; and the rivalry of the three nations caused a continual removal of the restrictions which commerce encountered. The old prohibitive systems melted gradually away; and as each country developed its manufactures, it wanted less of those of others; but all wanted more raw produce. Thus the United States was called upon for food, raw materials, cotton, and gold, in increasing volume; France furnished wines, food occasionally, fashions, and fancy goods; England held the lead in manufactured goods. Thus interchange has been progressive; and as the circle of commerce dilated, the demand upon the United States for cotton, particularly, was strengthened.

In estimating the exports of a nation, it is to be borne in mind that they are the surplus, after the wants of the people are satisfied; and that, in a free country where the people are unrestricted and lightly taxed, those who labor consume a larger share of that which they produce, and, as a consequence, the exports are less. Bearing this in mind, we shall observe the growth of exports from the United States to be proportionably much larger than those of the other countries. A large portion of those exports is cotton, and next to this figures gold. For the year 1860, the former was $191,806,555, and gold $56,946,851; together, $248,753,406. These two articles are surplus. The United States reserved 978,000 bales of cotton for manufacture, and sold the remaining 3,774,173 bales to the manufacturers of Europe. Of this, France took 589,587 bales, and Great Britain 2,669,432 bales. This forms the basis of England's exports. In the year 1859, $100,000,000 worth of raw cotton went from the United States to Great Britain. The exports of cotton goods from Great Britain were $163,776,916, or more than one-fourth of her whole exports. Thus the surplus productions of the United States being wrought up in England, the value added to it by labor constitutes the exports from Great Britain. The cotton received by Great Britain from other quarters, about supplies the raw cotton she uses for internal consumption. The same facts are true to a less extent in France. In both countries the duties on food and raw materials have been removed, in order that American produce may come cheaper to the manufacturer. They thus underlie the commerce of the world.

LAND SETTLEMENT—INTERNAL TRADE.

CHAPTER I.

WESTERN SETTLEMENT AND TRADE.

PURCHASE OF LOUISIANA—POPULATION AND LAND SALES—AVENUES TO THE VALLEY—CANAL AND RAILROAD EXPENDITURES—LAKE CITIES AND TRADE—RECIPROCITY.

THE original colonies, settled as they were under different grants, circumstances, and powers, had many and conflicting claims to the then comparatively unknown land running back to the Mississippi river, bounded on the north by the chain of lakes, and on the south by the Spanish territories of Florida and Louisiana, when there was a question of union into a confederacy. These various claims were a matter of dispute, which, from being serious, was settled by a mutual cession of the lands to the federal government, in trust, for the common benefit of all the states then existing, or thereafter to become members of the Union. The federal government having thus become owner of the lands, the constitution conferred upon Congress the power "to dispose of and make all needful rules and regulations respecting the territory and other property belonging to the United States." The obvious policy of the government, like that of every other thrifty owner, was at once to attract settlers to these lands, thereby making them serviceable to the whole people as fast as possible. To do so, the lands were to be sold cheap, and as few formalities as possible placed in the way of the settlers. The domain was organized under the control of the Secretary of the Treasury, being administered under him by a commissioner of the land office. The whole domain is divided into districts, for each of which there is a surveyor general, under whom the territory is subdivided for survey into districts. For each district there is a land office, occupied by a register and a receiver. A plan is prepared of each district by the surveyors, with the utmost care, showing ranges, sections, and townships, with topographic characteristics. Of this plan there are three copies; one is retained at the land office, one by the surveyor, and the third is sent to the general office at Washington, where it serves to regulate all transactions. The land being all surveyed into sections of 640 acres each, is offered for sale by the government at auction, at a *minimum* price of $1.25 per acre. After the land has been on sale two weeks, it may be sold in 40 acre lots, at a less price. The actual occupant of any land offered has the pre-emption to it. The buyer of the land pays the money to the receiver, and gets for it a receipt, of which the register sends a duplicate, with a certificate of the sale, to Washington. On the verification of the sale there, the deed of the land, called a "patent," is made out, and sent to the local land office register, who gives it to the purchaser in exchange for the receipt he holds, and his title is then complete. In addition to the attractions of low prices and pre-emption rights, long credits were originally given, to enable the settler to pay for the land out of its proceeds. These led to abuses, however, and the cash plan was finally adopted. There had been, however, large grants of land for military purposes, to schools and universities, to states for internal improvements, for seats of government, public buildings, benefit of Indians, salines, swamp lands, and lastly, in aid of canals and railroads—the construction of which aided the settlement of those lands at a distance from large water courses, and therefore from markets. Some time elapsed before the organization of the department was effected, and the first land office was opened in 1800, at Chillicothe, Ohio. The first sales of land, however, took place in New York three years before, and in that year a triangle on the lake was sold to Pennsylvania, in order to give her a port on the lake. That port is Erie, and is famous for the building

of Perry's fleet there in 1812, in seventy days from the time the wood stood in the forest until the stars and stripes floated to the breeze of the lake from the mast-head. That fleet was fatal to British supremacy on the lakes. Almost all the land sales took place in Ohio, until 1807, when offices were opened in Indiana and Mississippi. In 1809 an office was opened in Alabama, and in 1814 one in Illinois; in 1818 in Missouri, Louisiana, and Michigan. The sales of the lands proceeded with great activity in most of these states up to 1821, particularly after the embargo and war had turned attention from commerce and navigation to agriculture and manufacture. Nearly all the lands of the government were then in the great valley of the Mississippi. This is a vast basin, the sides of which are the eastern slopes of the Rocky Mountains on the west, and the western slopes of the Alleghany Mountains on the east. The chain of great lakes stretches across the northern end of the basin, and the Mississippi river flows through its centre to the Gulf of Mexico, receiving on its eastern side the Illinois and the Ohio, with the Wabash and other large rivers which flow generally west from the water-shed of the Alleghanies; and on its western side the Missouri and other large rivers whose waters descend from the eastern slopes of the Rocky Mountains. The only outlets to this vast basin were by the St. Lawrence River (not then navigable, however) north to the ocean, and the Mississippi river south to the gulf. Hardy pioneers did penetrate across the mountains, by a perilous seven weeks' journey, to the Ohio; but once there, intercourse was but limited with the east. The fertile soil was, however, attractive, and the Indian trade profitable. In 1790 the whole population west of the mountains was 108,868 souls, or about 3 per cent of the whole population of the Union. In 1800 that population had increased to nearly 400,000, but the only outlet for their produce was down the Mississippi through the French territory of Louisiana. That circumstance led to great dissatisfaction, and being adroitly handled by the political adventurers of that day, threatened disunion, by dissolving the states east and west—the latter to form a new confederacy with the south-west and Mexico. The remedy was to purchase Louisiana. Fortunately, at the moment Napoleon had relinquished his projects of forming French colonies; also being determined on war with England, he feared the seizure of Louisiana by that power, and determined to sell it to the United States for $14,984,872. This money, in 1803, gave him the sinews of war, and also the hope that the transaction would embroil the United States with his enemy. England did at a later period attempt to take the territories. But the troops who had driven the French out of Spain, embarked from France for the enterprise only to encounter the bloodiest defeat before cotton bags and western rifles. Louisiana was then possessed of a certain amount of population and wealth, which, from being French, by annexation became American. A considerable commerce had grown up. The amount of trade then existing between the eastern and western states may be gathered from the official returns of exports to New Orleans, in the four years before it was annexed, as follows:—

States.	1799.	1800.	1801.	1802.
Atlantic,	3,504,092	2,035,789	1,907,998	1,224,710
Western,	———	———	1,124,842	1,596,640
Total,	$3,504,092	2,035,789	3,032,840	2,821,350

The exports from the Atlantic States were mostly foreign merchandise destined for export up the western rivers. The exports of the western states were the produce sent down for sale. Those exports were the productions of hardy adventurers, whom circumstances had induced to seek their fortunes in the west. As long as the commerce of the country was active, and the sales of the farm products of the Atlantic states profitable, there was less inducement to migrate west than there was after the embargo had wrought a change in that respect, and the means of communication *via* New Orleans had improved. When that port became an American city, and the mighty river to its mouth an American stream, a new attraction was added to the fair lands of the valley, and in 1810 its population had risen to 878,315. The impulse thus given to western settlement was strengthened by the effects of war upon the Atlantic states. The interruption of commerce and stagnation of exports threw out of employment large numbers, who now turned an inquiring gaze beyond the mountains. The capital of the east thrown out of commercial employment by the same circumstances, flowed eagerly into banking, in the hope of

deriving large profits from the growing resources of the west; although inevitable disaster followed the erroneous principles on which that banking was conducted, the capital, so lost to stockholders, really promoted agriculture. Instead of confining themselves to advances on produce shipped, the institutions loaned money to make improvements and build houses that the farm profits could not pay for. The result was ruin to those accepting such advances, and insolvency to the banks making them. From 1810 to 1820 six states grew into the Union, while in the fifteen years that followed 1821 none were admitted.

This is an instructive fact, and it indicates that western land speculation so much overdone at those periods, was a long time in recovering itself. The process of forming new states is mostly a speculative one. The shrewdest operators get possession of the leading "sites" of future cities, and by stimulating and guiding the tide of migration, become wealthy in the rise of prices that the tide creates around them. As the wealthiest names of the eastern cities were men eminent in commercial enterprise, so were those of the western cities the earliest and most extensive land-holders. The political influence which brings the government patronage upon the theatre of such locations, is a part of the machinery to guide the popular movement. When in seasons of speculation, these operators become possessed of considerable tracts, a period of steady and healthy migration is required to distribute possession among settlers and clear the way for a new excitement. Yearly the trade grows by reason of the increasing surplus that the settlers throw off for market, and which being sold increases their ability to buy merchandise in return.

There are no data by which to measure the growth of trade in those western states after the admission of Louisiana, up to within twenty years, since the accounts were kept only for the foreign trade, and when Louisiana became a state, reports were no longer made. The sales of lands, and population of the new states, progressed as follows, however:—

	1790 to 1800	1800 to 1810
Population, increase,	276,769	492,678
Sales of land, acres,	1,536,152	3,008,982
	1810 to 1820	Total, 1820
Population, increase,	1,201,248	2,079,563
Sales of land, acres,	8,499,673	13,044,807

So rapid had been the settlement from 1810 to 1820. The agricultural productions of that region, as a matter of course, followed this rapid settlement of lands, and the exchange of those productions created a large trade of which there is little record. The mines and manufactures sprung up in the several towns, following the wants of the people.

The cession of Louisiana to the United States had produced a dispute in relation to its boundaries between this country and Spain, which then owned Florida. This dispute became very warm in 1819, when it was settled through the mediation of the French minister, by a cession of east and west Florida by Spain to the United States, in consideration of being released from claims for spoliation of American property to the extent of $4,985,599, which the United States government undertook to pay its own citizens. The coast line of the United States thus became complete. There were now large interests west of the mountains, a population of over 2,000,000 souls, occupying fertile land, capable of any development, and great numbers were interested in the rapid appreciation of those lands by settlement. The want of communication was a great obstacle. It required seven weeks to reach the newly settled cities of the west; and when during the war it was necessary to send a gun from New York city to Buffalo for defense, it cost six weeks of time and $1,000 in money to do it. There could be little trade under such circumstances, and the question was to open communication. A canal from the lakes to tide water on the Hudson was commenced in 1817, and completed in 1825. This Erie canal cost $7,143,789, and soon paid for itself, being the most profitable, as it was the greatest of modern improvements. It opened the door for the great western valley to tide water, and by doing so wrought an immense change in the condition and prospects of all that region. In October, 1823, New York had also completed the Champlain canal, running 63 miles, from Albany to Lake Champlain, at a cost of $1,179,871. Pennsylvania, in 1825, passed an act for the connection of Pittsburg, on the Ohio, with Philadelphia, a distance of 394 miles. This line was not completed until 1834. In 1828, a company was chartered to connect the Ohio with Georgetown, on the Potomac, by the Chesapeake and Ohio canal. These works gave three outlets from the great basin

to tide water. While yet they were in process of construction, however, a new power was being developed to supersede them for trade and light freights. In 1828, Massachusetts had three miles of railroad; from that nest-egg, capital has since hatched 28,270 miles, which cover the country like a network. The opening of the Erie canal was attended with great results, since it placed the produce of western lands cheaply in competition with that of the valley of the Hudson, and of the less productive states of the Atlantic coast. Commerce and manufactures increased, for the reason that agriculture paid less. The supply of labor changed direction, and the increasing numbers in manufacturing employments drew their subsistence from the west. The natural water courses that discharged themselves into the lakes were lined with settlers, and soon Ohio connected the lakes with the Ohio river, by a canal from Cleveland to Cincinnati, and also to Portsmouth. Indiana projected a canal from Toledo, on the lakes, to the Ohio river, cutting the state nearly longitudinally; and Illinois projected one from Chicago to the navigable waters of the Illinois river, thus connecting the lakes with the Mississippi river, nearly opposite the old French town of St. Louis—across the state. These works were not completed—some of them until ten or fifteen years after they were undertaken. That of Ohio, however, gave a new impulse to trade, not only by Cleveland, on the lakes, but by way of Cincinnati, down the river to New Orleans. These circumstances gave a new impulse to the sales of land and the settlement of the west. The expenditure of money for the construction of lands, and by the federal government for the construction of the great national road running west from the seat of government to the Mississippi, inaugurated the speculative movement in that direction. The bank fever then raged once more in support of the land movement, as it had done in the six years ending with 1820, and with the same results. $200,000,000 of money went from east to west, feeding the flame, until all real capital was nearly consumed, and the speculation ran wild until it burst in 1836. At that time a large quantity of land had passed, under the credit sales of the federal government, into the hands of private speculators, and the western fever lay dormant up to the revival that it experienced in 1846–7, by reason of the famine abroad, and the growing strength of the migration. Attention was then again turned to the lands, and the railroad expenditure began to exert the same influence that canal and bank expenditure had exercised in 1836, and the movement was progressive until the revulsion of 1857.

The natural water courses of the country had been followed by early migrations, and the settlement of the land bordering them had been stimulated by the bank paper speculation of 1810 to 1820. Following the excitement came the construction of the artificial means of navigation, involving an expenditure of some $50,000,000 for canals through new lands opened up by their operation; and these enterprises were again attended with a great bank expansion, that, although ending disastrously, nevertheless had the effect of drawing capital from England and the wealthier Atlantic states to spread it upon the fertile lands of the west. The subsidence of that speculation left the west in comparative quiet, although of general progress, for some years, during which a new and more powerful element of internal development was coming into action. This was the railroad system.

The first railroad of the country was three miles, built in Quincy, Massachusetts, and in operation in 1828, about the time the success of the Manchester railroad in England astonished the world with the new phenomena of locomotion. The example was not slow of imitation in this country; and the Boston and Providence railroad, uniting those cities by forty miles of rail, to connect with the steamboats to New York, was soon in operation. Its success caused other works to be undertaken in New England, and when the Western road was projected, to connect Albany with Boston, it gave the city a direct connection with the Hudson river and the Erie canal. New York projected the Harlem railroad; and from Albany several roads extended west, connecting city after city, until the united lengths of 380 miles made a continuous route to Albany—afterward, in 1850, consolidated in the New York Central railroad. Another road—the Erie—to connect New York with Lake Erie at Dunkirk (459 miles), through the lower tier of counties, was commenced in 1842 and completed in 1853. Baltimore projected the connection with Wheeling, on the Ohio, 380 miles, by rail, and Philadelphia connected Pittsburg, on the Ohio, 329 miles, by a line of works which became subsequently a continuous railway.

The New York railroads were not allowed by law to carry freight until 1850, except on payment of the canal tolls. These four routes opened the western valley by rail to tide water. The Canada roads, connecting Detroit and Buffalo, and Detroit and Portland, make five routes, with distances as follows:—

N. York to Chicago, *via* Erie, Lake Shore, and Mich. Southern,	957
N. York to Chicago, *via* Central, Canada, and Mich. Central,	957
Philadelphia to Chicago, *via* Pittsburg and Fort Wayne,	823
Baltimore to Chicago, *via* Ohio Central,	942
Portland to " " Canada and Michigan Central,	1,133

There had been, meanwhile, many western roads built in important localities, which had much favored the export of food in answer to the foreign demand growing out of the famine of 1846–7. In the year 1850, the federal government made a grant of land of about 2,500,000 acres to the state of Illinois, in aid of the construction of the Central railroad, which was to connect Galena, on the Mississippi, and Chicago, on the lake, with Cairo, at the junction of the Ohio and Mississippi rivers. The two roads leaving respectively Galena and Chicago, run south, converging until they meet at a point 50 miles from Cairo, and thence proceed together. The state not being able to do this herself, made over the lands to a company, on condition that they should construct the road. This was commenced in 1852, and finished in 1857, at a cost of $35,000,000. The tract given by the government was in size equal to the whole state of Connecticut, and was a part of 11,000,000 acres that had been over fifteen years in the market without finding buyers. The fact that the railroad was to run through them, and spend $25,000,000, and employ 10,000 men in the building of the road, made the lands attractive, and excited speculation. At about the same time the state of Michigan sold the Michigan Central road and the Southern Michigan road to two companies, on the condition of their finishing them, which was done in 1852, establishing a connection between Detroit and Chicago. Simultaneously the Galena and Chicago railroad was commenced, and finished in 1850, making a direct communication from the river at Galena to Chicago, prolonged by the Michigan roads to Detroit, and thence by the Lake Shore to New York, by the Erie or the Central railroads, or *via* the Canada route to Portland or to Boston. Subsequent connections have been made with the Pennsylvania and the Baltimore roads; and the western connections of Chicago and Milwaukee have been pushed under a vast expenditure of money. The inauguration of land grants by government, in the case of the Illinois Central, has been followed by grants to other states for the same object, until all the grants amount to 25,403,993 acres. These grants have rapidly developed southern connections, until the route is now complete between Chicago and New Orleans, shortening the river route by over 400 miles. While these "trunk lines" were in process of construction, cross roads were multiplied to an immense extent, and the connections of them form a continuous route from Bangor, Maine, to New Orleans, 1,996 miles. This vast chain of railways is composed of eighteen independent roads, costing in the aggregate, for 2,394 miles of road, $92,784,084, or nearly one-tenth of the whole railway system of the United States.

The progress of the construction by miles in each locality has been as follows, in periods of ten years:—

	East'rn.	Middle.	South'rn.	West'rn.	Total Miles.	Cost.
1828....	3				3	221,101
1830....	3	33	6	6	43	3,501,100
1840....	444	1,436	461	28	2,369	98,170,001
1850....	2,396	2,925	1,415	1,041	7,777	291,482,101
1860....	3,824	8,476	5,552	10,718	28,270	$1,009,172,000

A vast sum of money, amounting in all to $717,689,899, has been expended in the last ten years in the construction of 20,493 miles of road, of which rather more than one half has been built at the west. There are, in addition to these roads, some 16,000 miles of road incomplete. A considerable amount of this money was drawn from abroad. The iron was got in exchange for bonds, which have not in all cases been paid; but if the bonds were poor, the iron has not been of good quality. The quantity of railroad iron imported in ten years, to 1850, was 242,449 tons, at a cost of $9,603;587. In the nine years ending with 1857, the quantity imported was 1,765,693 tons, at a cost of $59,196,300. This number of tons suffices for about 15,000 miles of road, at 70lbs. to the yard. The money expended upon the roads in the employment of men and in the manufacture of superstructure, rolling stock, etc., of itself caused an immense activity and demand for produce, which, as a matter of course, became scarce and high upon the theatre of such expenditure. The manufac-

ture of superstructure, cars, locomotives, stations, etc., were the means of employing great numbers of men. The railroad iron, of which the manufacture requires the investment of much capital, was alone imported to any great extent. The remaining portions of the railroads were manufactured at home. The first locomotives in the United States were imported from England in the fall of 1829 or spring of 1830. The first Stephenson locomotive ever imported was the "Robert Fulton," in 1831, for the Mohawk and Hudson railroad. The first locomotive built in this country was constructed at the West Point foundry in 1830, for the South Carolina railroad. Since then the improvement and manufacture of railroads has been so successful as to admit of the export of many American machines. As the roads were completed, and the hands, numbering at least 200,000 men so employed, were discharged, they naturally turned their attention to the agriculture of the neighborhood where they had been employed, and production thus succeeded to consumption. The effect of the railroad expenditure upon the grain crops is to some extent indicated in the following table of miles of roads in operation in the western states at the periods named, and the population and corn product of those states:—

1850.	Miles of Road.	Population.	Bushels of Corn.
Ohio	299	1,980,329	59,078,695
Indiana	86	982,405	52,964,363
Illinois	22	851,470	57,646,984
Iowa		192,214	8,656,799
Michigan	344	397,654	5,641,420
Wisconsin		305,391	1,988,379
Missouri		682,044	36,214,537
	751	5,391,507	222,191,177
1857.			
Ohio	2,988	2,580,011	82,555,186
Indiana	1,291	1,146,717	80,111,416
Illinois	2,714	1,358,960	119,186,921
Iowa	344	596,251	32,111,502
Michigan	1,032	637,514	8,322,756
Wisconsin	822	822,606	14,186,822
Missouri	547	1,023,888	98,712,561
Total	9,738	8,165,947	435,187,164
Increase	8,987	2,744,440	212,995,987

The corn crops had nearly doubled, and the wheat crop in the same states had risen from 43,840,637 to 107,275,641 bushels in 1857—an increase of 63,400,000 per annum, worth as many dollars; and estimating the corn at the same aggregate, there had been a sum of $126,000,000 per annum, or half the cost of the railroads built, extracted each year from the soil through their influence. We may now observe what had been the actual sales of the public lands by the government in the forty years ending with 1860, to June 30th, when the fiscal year ends, divided into periods of ten years each; the first, being that of recovery from the speculation that attended the close of the war; the second, embracing the period of bank and canal building excitement; the third, that of recovery from that excitement; and the fourth, that of the last great railroad building excitement. The quantity sold during the forty years was, it appears, 140,883,740 acres.

ANNUAL SALES OF LAND BY THE FEDERAL GOVERNMENT.

	Acres.		Acres.
1821,	822,185	1831,	2,804,745
1822,	763,811	1832,	2,411,952
1823,	638,749	1833,	3,856,227
1824,	723,038	1834,	4,658,218
1825,	871,619	1835,	12,564,478
1826,	839,263	1836,	20,074,870
1827,	905,937	1837,	5,601,103
1828,	946,650	1838,	3,414,907
1829,	1,236,445	1839,	4,976,382
1830,	1,880,019	1840,	2,236,889
Total	9,627,666		62,599,871
Population	2,233,880		3,707,299
1841,	1,164,796	1851,	1,846,847
1842,	1,129,217	1852,	1,553,071
1843,	1,605,264	1853,	1,083,495
1844,	1,754,763	1854,	7,035,735
1845,	1,843,527	1855,	15,729,524
1846,	2,263,730	1856,	9,227,878
1847,	2,521,305	1857,	4,142,744
1848,	1,887,553	1858,	3,804,908
1849,	1,329,902	1859,	3,961,580
1850,	769,364	1860,	4,000,000
Total	16,269,421		52,385,782
Population	10,454,245		15,081,894

The total sales of lands, from the opening of the land offices to 1860, were 153,928,547 acres. There had been issued land warrants to the soldiers of the Mexican war, and former wars, which have taken up large portions of the land. These warrants are for 160 acres, 120 acres, 80 acres, and 40 acres, and have been sold in the markets at $1 per acre for the smaller lots, and about 80 cts. the larger warrants, by which means the lands come less to the buyer. In addition to the lands sold, the government has donated 67,736,572 acres to schools; 10,897,313 to internal improvements; 279,972 to individuals; 50,060 to seats of government;

44,109,979 to military services; 432,325 salines to states; 3,400,725 Indian reserves; 8,923,908 private claims; 21,948,916 swamp lands, granted to states; 25,463,993 to railroads; and there remain unsold lands on hand, 1,088,732,498 acres, as a small supply for new comers.

The population of the land states had increased, it appears, from 2,233,880 in 1830, to about 15,000,000 in 1860, during which period of thirty years, 131,255,074 acres of land were sold by the Government. These land sales and population are the ground work of the national trade, which grows with the surplus produced by the land settlers. Those people at first make few purchases of goods, but increase them as their surplus produce sells and enables them to do so.

The people who seek new lands on which to rear their future homes and fortunes, are, for the most part, not possessed of much capital, and under ordinary circumstances much is required for a family to perform a distant journey, locate and prepare land and wait until the crops are grown. Nevertheless, pioneers have ceaselessly pushed forward into the wilderness and battled with nature in the shape of forests, animals and savages, until twenty new states and millions of wealth have been added to the Union. The great instrument of this progress, has, under Providence, and in the hands of skilful and determined men, been Indian corn. That grain has been the poor man's capital, enabling him to conquer the wilderness. It needed on his locating his future home but to drop the seed in the fertile soil, and while he busied himself with his new dwelling, a sure crop grew up, which in a few months became food for his family and his animals. The husks furnish his bed and the cobs his fuel. He is thus by the gift of nature furnished with capital for the coming year, until his other crops and young animals have grown. Indian corn has thus given the pioneer a hold upon the land and made his footing firm where otherwise he might have been compelled to succumb to hardships. With every such remove on to new land the circle of trade has increased. A few months only suffice for the settler to furnish a surplus of production in return for comforts that he desires. For this reason chiefly corn figures so largely in the agriculture of the west. The prolific soil throws out quantities far beyond the wants of the planter, and in a region where all are planters, the supply becomes superabundant and must find distant markets only at rates so low as to leave little to the grower. Two local demands are created for it. The most important of them is to feed hogs, and pork becomes a leading staple export; the other is for distillation, and whiskey is largely exported. The quantity of corn required to make a certain quantity of pork becomes accurately known, and the price of meat rises and falls with that of the grain, as does whiskey also. Thus out of the great staple grain Indian-corn come directly the three great articles of export, corn, pork and its manufacture, and whiskey. Lumber in all new countries is also an important export. As the settlements progress, beef, wool, wheat and other grains follow, and trade increases. While Indian corn has been the indispensable instrument of settlement at the west, the nature of the country and the fertility of machine inventions have been no less necessary in securing a surplus for sale. If the corn grows readily it could not under the old system be so readily harvested in a region where land belonged to every man, and every man's labor could be applied only to his own service. At the same time no man's labor more than suffices for the wants of his own family. Here machinery steps in, and favored by the level nature of the soil operates to a charm. A man who could with the scythe cut from one to one and a half acres of grass per day, may ride round a field and cut ten acres in a day without fatigue. Instead of a gang to rake and turn and cock, his horse and himself may with a patent rake perform all that labor and more effectually when driven by a shower of rain, than any gang. His grain is cut by the same means and light labor as his grass. It is threshed out by a similar process; his corn is husked and shelled by machines; and when drawn to the railroad depots it is elevated into vast receptacles to be transported rapidly and at small cost to the best market. All these machine aids enable the man whose own labor would scarcely supply the demands of his family to turn out a vast surplus. This surplus seeks the river and lake cities by rail, canal, and steam, to be transported to the Atlantic markets for consumption or export, or may now leave Chicago and Milwaukee on the lakes, or St. Louis and Cincinnati on the rivers for Liverpool direct without breaking bulk. The table of land sales above gives a very good

indication of the accumulating force behind the forwarding cities to push forward the trade. As every bushel of grain they receive requires an equivalent from them in goods, each grows under the double demand. Their combined growth is the basis of lake and river trade, distributing the produce for consumption, and bearing back goods in return, while the foreign commerce of the country grows with the aggregate surplus to be exported and the consequent increase of the merchandise received in exchange. Having glanced at the settlement of the western lands, it becomes no matter of surprise that the cities which were the focus at which such large quantities of surplus products concentrated grew rapidly, and grew in proportion to the rapidity of settlement and the perfection of the means of internal communication. It may be worth while to sketch the leading ones, first those of the lakes.

BUFFALO, on Lake Erie, was laid out originally in 1801, but was of small importance until in 1825 by the opening of the Erie canal, it became the gateway from the great valley to the Atlantic states. Its population was then 3,000. As the "great valley" at that time had, however, but little to spare, the importance of Buffalo was to swell with the growth of the west which was rapid indeed. In 1832, thirty-one years from its settlement, Buffalo became a city with 8,653 inhabitants. In the twenty-eight years that have since elapsed the population has risen to 81,541. In 1825, the tonnage belonging to the port was 200 tons. It has grown to 91,974, valued at $3,640,950, besides 600 canal boats. The steam tonnage running to Buffalo is 60,740 tons. The exports of Buffalo by canal are $20,000,000 and by railroad as much more. The opening of Dunkirk to New York over the Erie road created a rival to Buffalo, and the Welland canal round the falls permitted vessels to go to Oswego, where they take either canal or railroad on a shorter route to New York, also rivaling Buffalo. It is obvious that a few miles longer trip adds little to the cost of a loaded ship, and by reducing the canal and railroad transportation the cost is diminished. Hence Oswego has an advantage over Buffalo.

The imports into Buffalo by lake and railroad, showing the relative and aggregate values, indicate the gain of "rails" over "sails." They were, for a number of years, as follows:

	Lake.	Railroad.	Total.
1850,	$22,525,781		$22,525,781
1851,	31,889,951		31,889,951
1852,	34,943,855		34,943,855
1853,	36,881,230	2,234,273	39,115,503
1854,	42,030,931	6,397,923	48,428,854
1855,	50,346,819	10,968,384	61,313,203
1856,	42,684,079	16,422,505	59,106,584
1857,	36,913,166	15,020,580	51,933,746

OSWEGO, settled in 1820 on Lake Ontario has been mostly the creation of the Oswego canal and of the railroad communication since established, which makes its position on the lake with reference to the Canada and lake trade very desirable. The canal was completed in 1828, and the Oswego and Syracuse railroad in 1848, when Oswego, having 10,305 inhabitants, was incorporated into a city. The modification of the English colonial trade system, and the admission by the United States of goods in bond under the warehouse system, laid the foundation for a great development of the business of Oswego on the occasion of the famine of 1847, when the trade of the place took a sudden start, which it has since sustained. The Welland canal, connecting Lakes Erie and Ontario, gave Oswego a line of communication with the west, by which freight coming thence to the east, would have, *via* Oswego, less canal navigation than by other routes. In May, 1857, the Welland railway, running along the banks of the canal, was projected, and is now completed, thus giving a communication all the year round. By these means Oswego draws its supplies from every western state; Oswego also is a great salt depot, and has a large lumber trade with Canada. The imports from Canada in 1859 were $3,831,041, and the exports $1,918,798; the tonnage of the port amounts to 26,395.

CLEVELAND.—The place was settled by one family in 1799, but its population did not increase beyond 500 in 1825, when the Erie canal was opened. Its greatest impulse was derived from the construction of the Ohio canal, connecting it with Cincinnati, the Pennsylvania and Ohio canal, connecting it with Pittsburg, and the Welland canal in Canada, connecting Lake Erie with Lake Ontario. Since that event a considerable Canadian trade has sprung up in Cleveland. The canals of Ohio brought down the increasing quantities of produce that were then exported in exchange for the merchandise that was delivered by lake for the consumption of the interior. In 1832 there were 26 sail vessels and one steamer belonging to

Cleveland; there are now 14 steamers and 142 sail vessels, with an aggregate tonnage of 39,984 tons owned there. The multiplication of railroads has, however, added of late more to the city business than either canals or tonnage. There are six roads running into Cleveland, of an aggregate length of 754 miles, and their annual receipts are $4,520,452. These crossing Ohio in every direction, connect the city with Toledo, Columbus, Pittsburg, and New York. With these advantages, under the action of the reciprocity treaty with Canada, a large foreign trade sprung up. In 1858 the imports and exports were as follows:—

	Vessels.	Tons.	Coastwise.	Foreign.	Total.
Exports....	2,084	705,577	$13,166,256	$224,986	$13,391,242
Imports....	2,137	721,519	26,087,849	168,409	26,256,258

The trade between Cleveland and Lake Superior has also become important within four or five years, in which time it has risen to $3,000,000 in value, mostly in copper ore. The most remarkable development of trade is, however, the direct trade between Cleveland and Europe. In 1856 a vessel, built in Cleveland, loaded wheat at Chicago for Liverpool, where she was sold to advantage, and now runs to Brazil. In the following year others were sent, and a vessel arrived from Liverpool at Chicago with hardware, etc. In the following year a fleet of ten vessels, 3,600 tons, owned by Cleveland merchants, sailed for Liverpool, and since run to the Mediterranean, South America, and elsewhere. The coal trade of Cleveland has become large for the supply of the steamers and factories on and around the lakes; the supply is about 250,000 tons per annum.

DETROIT.—This is the oldest of the western cities, having been early occupied by the French, but its progress, like the others, was slow until the opening of the Erie canal. In 137 years, up to 1820, the population had risen only to 1,442 souls. The greatest impulse has been given to Detroit by the formation, in the last ten years, of the railroad system, which connects it with the interior country. The Great Western railway of Canada, coming 229 miles, has its terminus virtually in Detroit. From Detroit west run the Michigan Central road, 228 miles, to Chicago, and connecting with the whole western net-work of rails; the Detroit and Milwaukee railroad, crossing the Peninsula, 185 miles, to Grand Haven; the Michigan Southern road running also to Chicago. The earnings of the three roads last year were $5,700,000.

CHICAGO is probably the most remarkable of the western cities for its growth. The place in 1812 was but a garrison that was abandoned. Subsequently, and as an Indian trading post, it collected some sixty or seventy persons in 1823. Although situated at the bottom of the lake, with a fine harbor sufficient for any lake trade, it could not thrive until the back country supplied it with produce to sell, and required of it merchandise in exchange. To procure this the Illinois and Michigan canal, connecting the lake with the navigable waters of the Illinois, was commenced in 1836, 100 miles in length. In aid of this work the federal government donated alternate six mile sections of the public lands. The state had also projected a large system of railroad improvements on a scale far beyond its means, and it failed in 1840. Subsequently the means was raised to complete the canal, which was effected in 1850. Since that date numerous railroads have been constructed, leading to the Mississippi river in a fan-like form, having Chicago for the centre. The expenditure of some $150,000,000 for the construction of those roads, over a circle of country of which Chicago is the natural market, has had a prodigious effect upon its welfare. The effect of that expenditure attracted immigrants and speculators, whose outlay reflected prosperity upon the city. The means of communication thus formed by 2,900 miles of railroad diverging from the city, over a vast circle of fertile country, has made Chicago the first primary grain port in the world, shipping as it does more than 20,000,000 bushels of grain per annum. It has millions of tonnage yearly entered and cleared, importing and exporting to the amount of $50,000,000. Chicago is only six or eight feet above the level of the lake, but the harbor has a depth of thirteen feet of water, and will always be ample for the commerce of the lakes. The number of vessels arriving here in 1857 was 7,557. The new Canadian rules in relation to navigation enables Chicago vessels to clear direct for Europe, and there are a number in the trade by which produce and goods are shipped direct to Europe. The total value of produce exported in 1859 was $24,280,890. Inasmuch as breadstuffs are the principal product of the country between Chicago and the Mississippi, and furnish so important an item in

the commerce of the place, the following table will best illustrate as well the development of agriculture as the chief element of trade:

SHIPMENTS OF FLOUR (REDUCED TO WHEAT) AND GRAIN FROM CHICAGO FOR TWENTY-THREE YEARS.

	Bushels.		Bushels.		Bushels.
1838,	78	1845,	1,024,620	1853,	6,412,181
1839,	3,678	1846,	1,599,819	1854,	12,932,320
1840,	10,000	1847,	2,243,201	1855,	16,683,700
1841,	40,000	1848,	3,001,740	1856,	21,583,221
1842,	586,907	1849,	2,769,111	1857,	18,082,678
1843,	688,907	1850,	1,830,930	1858,	20,095,166
1844,	923,494	1851,	4,646,291	1859,	16,758,795
		1852,	5,873,141	1860,	30,000,000

The famine abroad in 1845–6–7, consequent upon the failure of the potato crops, caused a demand for grain that was felt in Chicago. The development was not large, however, until 1852, when the Galena road pushed out on to the prairie, and since then the receipts have not ceased to increase by every line of road; the quantity that came in the first six months of 1860 is larger than ever before. These grain receipts are said to make Chicago the largest primary grain port in the world.

MILWAUKEE is one of the chief cities of the western shore of Lake Michigan. It was settled in 1834, and up to 1840 could boast of but 1,700 inhabitants. These had grown to 20,000 in 1850, and 30,000 in 1853, being estimated at 55,000 in 1859. The growth has been most rapid under the settlement of the country west of it, by means of the large expenditures there made in the last four years for railroads. These, in the state of Wisconsin, have an aggregate length of 2,403 miles, and have been constructed mostly in the last ten years at an expense of $36,742,063. The expenditure of this large sum of money, in addition to that laid out by speculators and emigrants, imparted an impulse to the prosperity of the city which is reflected in its population and valuation. The circle of fertile country poured into the city products which were exported from it to the value of $27,974,748 in 1856, and in return $20,274,000 worth of goods was imported. The manufactures of the city were also valued at $8,057,000. The quantity of grain shipped from Milwaukee in 1858 was 6,155,507 bushels, and from other lake ports of Wisconsin 1,561,881 bushels. The grain movement, which is the basis of the city's commerce, indicates the ratio of its growth, and this has been as follows:—

	Bushels.		Bushels.		Bushels.
1851,	576,580	1854,	2,534,617	1857,	3,727,468
1852,	1,029,379	1855,	3,758,965	1858,	6,160,024
1853,	1,476,998	1856,	3,720,108	1859,	6,488,038

We may recapitulate these lake cities in the following table, showing the date of settlement, of incorporation, and population at that date, with the population and valuation in 1850 and 1859:—

	Settled.	Incorporated.	Population.
Buffalo	1801	1832	8,653
Oswego	1820	1848	10,305
Cleveland	1799	1836	4,000
Detroit	1683	1802	700
Chicago	1828	1835	800
Milwaukee	1830	1840	9,655
Total			34,113

	Population in 1850.	Total Valuation.	Population in 1859.	Total Valuation.
Buffalo	42,764	$18,427,000	81,541	$37,437,961
Oswego	12,205	9,107,202	20,000	21,500,000
Cleveland	17,084	12,102,101	43,350	21,951,428
Detroit	21,057	10,741,657	46,834	28,141,591
Chicago	29,963	31,205,000	109,420	78,291,000
Milwaukee	31,077	18,421,000	45,325	35,458,130
Total	161,100	$100,003,960	346,470	$222,829,210

Thus these prominent cities have grown up, so to speak, in 25 years, as points where farm produce is received from the country for sale and where goods are furnished in exchange. The whole value of the lake trade has been estimated at $600,000,000 per annum, and the transaction of this business has, it appears, created six cities, with a population of 347,000 and a taxable valuation of $222,829,210. The manufactures have gradually increased in those cities in order to produce a local supply instead of importing, and new inventions in sewing and other machines have promoted that change, as machinery aided the development of surplus produce. The aggregate trade poured upon the lakes from all these sources has been increasingly large. The aggregate quantities of grain shipped from the grain regions are seen in the following table, which shows the routes taken to market:—

	1857.	1858.	1859.
Via Lake Ontario	18,044,854	11,872,995	14,874,961
Via Suspension Bridge	1,049,108	1,900,000	337,778
Via Lake Erie	22,081,164	29,432,121	24,730,582
From Ohio River eastward	4,352,036	6,242,441	4,446,251
Grand total	45,476,662	49,447,557	44,389,602

The totals were composed of these following grains:—

	Flour. barrels.	Wheat. bushels.	Corn. bushels.	Oth. Grain. bushels.	Total in bushels.
1856,	3,879,189	19,956,625	14,282,682	4,634,969	58,269,571
1857,	3,412,904	17,362,161	8,779,832	2,270,149	45,476,662
1858,	4,602,780	20,794,515	10,558,527	5,080,615	49,447,557
1859,	3,760,285	16,864,812	4,423,096	4,310,269	44,389,602

These fluctuations follow the course of western business. In 1857 there was a heavy decline under the influence of the panic of that year. In 1858 the speculative consumption of the interior having ceased, the quantities that sought market were less

than in 1856. The railroads also delivered considerable quantities.

The rapid settlement of the west attracted the attention of the Canadians, and they began early with some energy to take measures that should give them their share of it. The St. Lawrence river was for them the only outlet, and to make that serviceable, extensive works were necessary to pass around the rapids, and make navigation practicable from the lakes to the sea. The Welland canal, passing around the Falls and connecting Lakes Erie and Ontario, was constructed, with other necessary works, completing, in 1846, a system, at a cost of $20,000,000. The tolls on these works were considerable, and duties on goods imported into Canada from the United States were so high as to check trade—the more so that similar duties were imposed in the United States on Canadian goods. In 1850 the navigation laws were repealed, opening the canals and rivers to foreign vessels. The difficulties in the way of navigating the St. Lawrence have since that date been, to a great extent, removed. Many light-houses have been constructed, the system of pilotage has been revised, a service of tug-boats, of great power, and working at moderate rates, has been organized, and the depth of water between Quebec and Montreal has been increased by dredging, so as to permit the passage of vessels drawing eighteen feet six inches. With these changes and improvements a new element has been introduced. The construction of railways had begun to occupy the attention of the public mind in Canada. In 1849 an act of the Colonial Legislature was passed guaranteeing 6 per cent. on half the cost of all the railways seventy-five miles in extent. Three years later the Grand Trunk line, from Montreal to Toronto, and from Quebec to Riviere-du-Loup, was incorporated as a part of the Main Trunk line, and the line from Quebec to Richmond had been commenced. In 1853 the amalgamation of all the companies forming the Main Trunk line was completed, under a Parliamentary sanction with powers to construct the Victoria Bridge across the St. Lawrence, and thereby connect the lines west of Montreal with those leading to Quebec and Portland.

By the aid of all these enterprises combined, there is now in operation in Canada 2,093 miles of railway, including 1,112 miles of the Grand Trunk, the whole connected with the great winter harbor of Portland, in the state of Maine.

To give effect to this great system of communication, the whole system of tolls upon inland navigation has been abandoned. The whole line of navigation from Chicago to the Atlantic is now free from tolls and lake dues, the ports of Sault Ste. Marie and Gaspe have been made free ports, and it is probable many more will be thrown open. While these measures have been in progress to facilitate trade, a most important measure was adopted in 1854. This was the reciprocity treaty of that year, which designated a number of articles that were to be free on both sides. The treaty went into operation in the latter part of 1854, and the trade has been affected by it as follows:—

	Domestic exports.	Total exports to Canada.	Total imports from Canada.
1852,	$6,655,097	$10,509,016	$ 6,110,299
1853,	7,404,087	13,140,642	7,550,718
1854,	15,204,144	24,566,860	8,927,560
1855,	15,806,642	27,806,020	15,136,734
1856,	22,714,697	29,029,349	21,310,421
1857,	19,936,113	24,262,482	22,124,296
1858,	19,638,959	23,651,727	15,806,519
1859,	21,769,627	28,154,174	19,727,551
	$129,129,366	$181,120,270	$116,694,098

The exports of United States produce to Canada have been in this period of eight years over $112,000,000 in excess of all the imports from Canada. In addition there have been exported to Canada fifty millions of foreign goods that have been imported on the seaboard. The domestic exports are composed of the produce shipped from the American lake ports, and entered at the Canadian ports. The freedom of navigation on the canals and rivers enjoyed by the American vessels has also opened a large trade from Cleveland, Chicago, and other ports, direct to Europe. Last year the number of vessels passing through the canals of Canada was 26,466, with a tonnage of 2,455,021. Of these 22,800 were Canadian, with a tonnage of 1,828,383. Deduct 300,000 tons for the traffic on the local canals, from which the tolls are not removed, and there is still a balance of Canadian over American tonnage of 926,638. The lake ports also enjoy more or less import trade on which duties are collected. Those duties at all lake ports for the last four years have amounted to $288,508.

The efforts of Canada to obtain the trade, and cause it to pass down the St. Lawrence,

had to overcome, however, the climate, to be successful; for four months in the year that outlet is ice-bound, while the ports of Lake Ontario are never closed by the ice, and offer railroad connection with New York, Boston, and Philadelphia, the former for export and the latter for supplies of manufacture.

CHAPTER II.

RIVER CITIES—ATLANTIC CITIES.

THE development given to the lake cities by the canal and railroad construction, was participated in to as great an extent by the river cities, the course of whose trade flowed downward toward New Orleans as an outlet.

PITTSBURG is situated at the point where the junction of the Monongahela and Allegheny forms the Ohio river, which thence flows to the Gulf of Mexico. The origin of the place dates from its occupation by the French as a post, and its growth is due to its commanding position. It is 301 miles east by north from Philadelphia, and is 130 miles from Lake Erie. The traveller descends the river 450 miles to Cincinnati; 583 to Louisville, Kentucky; 977 to Cairo, where the Ohio pours into the Mississippi; 1,157 to St. Louis, and 2,004 miles to New Orleans. That vast valley collects in its course the produce coming right and left by streams, canals, and railroads, to deliver it at New Orleans, whence ascend the merchandise, tropical products, and materials of manufacture, to be distributed at the commercial and manufacturing ports. The position of Pittsburg was the most important, commercially, until the opening of the Erie canal. The resources were highly favorable to ship-building, and it supplied the first boats that descended the Ohio. The commerce and ship-building prospered largely during the war of 1812, but after the peace it declined. Since that period manufacture has taken the place of commerce, and it ranks next to Philadelphia as a manufacturing town. The facilities and resources for manufacture are immense. The population in 1800 was 1,565, and in 1816 it was incorporated as a city with about 6,150 inhabitants. The population of Pittsburg in the present year is given at 130,000, but this includes Alleghany City and other suburbs; the city proper is stated at 48,804. The progress of the city has been as follows:—

	Population.	Value of manufactures.
1816,	6,182	$1,896,366
1836,	15,481	15,575,440
1850,	46,601	55,287,000
1860,	48,804	

CINCINNATI was located at the mouth of the Licking river in 1788, in the centre of an area which commanded the commerce of the Miami, the Wabash, the Scioto, the Muskingum, and the Kanawha rivers. These streams delivered large quantities of produce to foster the trade of Cincinnati, which grew with great rapidity, corresponding mostly with New Orleans, to which its merchants sent the produce, and made purchases of goods in the eastern states, which came up the river from New Orleans by a long voyage, charged with heavy expenses for freight, insurance, etc. The exchanges ran on New Orleans against the produce sent down, and these credits were the means of payments for goods. The opening of the Ohio canal to the lakes, to correspond with the Erie canal to tide-water, gave a new outlet for produce of the northern part of Ohio by way of Cleveland, and also a better channel for the receipt of goods. The net-work of railroads has still further multiplied the means of communication. Portland, Boston, New York, Philadelphia, and Baltimore, are almost equidistant from Cincinnati, which by the same means has its markets extended in a broader circle west. The progress of the city has been as follows:—

	Population.	Imports.	Manufactures.	Exports.
1800,	750			
1810,	2,540			
1820,	9,642	$1,619,030	$1,059,459	$1,834,680
1830,	24,831	2,528,590	1,850,000	1,063,560
1836,	31,207	8,270,000	12,388,260	8,101,000
1840,	46,338	16,972,000	17,780,038	15,480,000
1850,	115,436	41,256,199	54,550,134	23,284,896
1860,	158,851	96,218,274	112,254,000	66,007,707

These figures give the rapid growth of the city since the railroads have opened a broader field from which to draw the materials of trade in exchange for merchandise demanded by the growers.

LOUISVILLE, Kentucky, was a port early in 1781, and it made little progress as a city. Its population grew but to 600 in 1800, and was only 4,012 in 1820. The difficulties of navigation were a drawback upon its commerce, until the Portland canal, two miles long, which had been authorized in 1804, around the falls of the Ohio, was opened in 1830. The cost of the work, $600,000, was paid, one-third by the United

States, and the balance mostly in eastern cities interested in getting goods up the river. A bridge over the Ohio was built in 1836, at a cost of $250,000. The city was incorporated in 1828, and its population was then 10,336. In 1836 the population was 19,967, and the annual amount of business transacted was $29,004,202. In 1840 the population was 21,210, and in 1850 it had again doubled, reaching 43,194.

St. Louis was occupied as a French trading post in 1763, and the town was laid out in the following year, with the name of St. Louis, in honor of that Louis XV., who had so little claim to saintship. The first impulse to its growth was, however, the annexation of Louisiana to the United States, when emigrants poured into the new country, bringing with them a spirit of enterprise which soon made visible effects upon St. Louis, the commerce of which struggled against the difficulties inherent in barge and keel boat navigation. In 1817 the General Pike, the first steamboat, arrived at St. Louis. That event marked a new era, and in 1822, the population being 4,598, the city was incorporated. It was not until the settlement of the north-western states, under the influence of the canals and railroads, that the prosperity of St. Louis became marked. In 1836 the sales of merchandise in St. Louis were given at $6,335,000; in 1858 the local insurance was $31,800,232. The population of the city, which had been 63,491 in 1848, rose to 160,577 in 1859, and the city valuation was $78,463,375. The settlements of the upper Mississippi, east and west, pour naturally an increasing trade into the city, and its railroad connections are now pushing out toward the Pacific. We may recapitulate the leading river cities as follows:—

	Settled. Date.	Incorporated. Date.	1840. Popular'n.	1850. Popular'n.	1850. Population.	1850. Valuation.	1859. Population.	1859. Valuation.
Pittsburg	1784,	1816,	6,150	21,204	46,601	$27,960,600	48,804	$46,866,600
Cincinnati	1788,	1802,	890	46,338	115,436	55,670,631	158,851	91,861,978
Louisville	1778,	1828,	10,336	21,210	43,194	17,277,600	70,226	30,042,800
St. Louis	1764,	1822,	4,598	16,469	77,860	38,921,201	160,577	78,463,375
Total			21,974	105,221	283,091	$139,830,032	438,458	$247,234,753

The numbers and wealth of the river cities have increased in a ratio, perhaps, larger than the lake cities. They divide with the latter the trade of country lying between the lakes and the Ohio river, drawing produce and shipping merchandise, while they have also a strong hold upon southern trade. The business of all those cities, as well lake as river, is but a reflection of the growth of the great seaports. The canals, streams, and railroads that pour forth their products in a southerly direction, and feed the river cities, combine with the other business points of the region to swell the trade of New Orleans, the common correspondent of all; the roads, rivers, and streams that deliver their trade in a northerly and easterly direction, glut the great trunk lines with the merchandise which they pour into Boston, New York, Philadelphia, and Baltimore.

The city of New Orleans, at the Delta of the Mississippi, is commercially the second city of the Union, and in respect to the exports of domestic produce, it ranks first. Its position is very advantageous, and its growth has been proportional to the development of the country, the resources of which supply it with produce and depend upon it for merchandise in return. The city itself was founded by the French in 1717, and passed into the hands of the Spanish in 1762. By them it was reconveyed to the French in 1800, and was sold by Napoleon to the United States in 1804. At that time its population, mostly French, was 8,056, and it was rapidly increased by the fact of annexation, which not only carried enterprising men thither, but settled the upper country, which was the source of trade. The city was chartered in 1805. In 1820 the population had increased to 27,176 persons, but the exports of the city still consisted mostly of the produce of the upper country, which a population, increased rapidly by the influence of war and speculation, had greatly developed, although the valley of the Mississippi had not yet attracted cotton planters. In 1830 the trade of the city marked a larger production of farm produce. In the succeeding ten years the migration from the Atlantic cotton states to the new lands of the valley produced a great change in the trade of New Orleans. The cotton receipts rose from 300,000 bales in 1830, to 954,000 in 1840, and tobacco from twenty-four to forty-three thousand hogsheads, and the sugar crop also had risen to 85,000 hhds. The exports were now swollen by the sales of cotton and tobacco,

but, with the operation of the canals and railroads in the upper country, the supplies of home produce had again become important. The progress of New Orleans has been as follows. The figures for 1860 are not published, but the cotton is 30 per cent. higher, and the amount will be about $200,000,000 received from the interior.

	Population.	Imports.	Exports.	Receipts from Interior.	Receipts of Specie.	Valuation of Real Estate.
1804,	8,056	..	$1,392,093	..	..	..
1810,	17,242	..	1,753,974	..	..	..
1820,	27,176	$3,379,717	7,242,415	..	..	..
1830,	46,310	7,599,083	13,042,740	..	..	..
1840,	102,193	10,673,190	34,236,936	$45,761,045	..	..
1850,	116,375	10,760,499	38,105,350	96,897,873	$3,792,662	..
1851,	..	12,528,460	54,413,963	106,924,083	7,938,119	..
1852,	..	12,057,724	49,058,885	108,051,708	6,278,523	$66,350,260
1853,	..	13,654,113	67,768,724	134,233,731	7,865,226	..
1854,	..	14,402,150	60,172,628	115,336,798	6,967,056	..
1855,	..	12,923,608	55,688,552	117,106,823	3,746,037	..
1856,	..	17,183,327	80,547,963	144,256,081	4,913,540	..
1857,	..	24,981,150	91,514,286	158,061,369	6,500,015	..
1858,	..	19,586,013	88,382,438	167,155,546	13,268,013	108,651,135
1859,	170,766	18,349,516	101,734,952	172,952,664	15,627,016	111,193,802

This table embraces the official figures for population, trade, and valuation. The most marked feature is the small amount of imports as compared with exports. This we shall find to be the reverse with the trade of New York; the trade of the two cities for the past year having been as follows:—

	New York.	New Orleans.
Imports	$220,247,307	$18,349,516
Exports	106,604,097	101,734,952

The domestic exports from New York, exclusive of specie, were but 54,000,000, showing an excess of about $166,000,000 imported; while at New Orleans the excess is $83,385,436 exported. These figures represent the course of trade. The receipts from the interior at New Orleans rose from $96,897,873 in 1850, to $172,952,664 in 1859. This embraces sugar and molasses, of which the value was nearly $32,000,000, but which being sent up the western rivers and to the Atlantic ports, is not exported. Cotton was $92,037,794 of the amount, and tobacco $9,324,326. These sums together make $133,362,120, leaving $39,590,544 as the value of farm produce, which comes down the western rivers as the readiest conveyance. On the other hand, the lighter merchandise which forms the sum of imports into New York, instead of going round by way of New Orleans, goes across the country on railroads. It follows, that when the west sends forty millions of produce to New Orleans for sale, and has purchased an equal amount of goods in the east, that its money is in New Orleans and its debts in New York. It draws upon New Orleans then to pay New York. New Orleans being so large an exporter, has large sums due it, for which it draws to meet what it owes to the west for produce. This state of affairs is the basis of bill operations. Firms being connected, one at Liverpool, one at New Orleans, and one at New York, the New Orleans house buys cotton for shipment to England, and draws for it at sixty days on the New York firm; the bill being discounted, places him in funds to pay for the cotton, which will arrive in Liverpool in thirty days. The New York firm draws a sterling bill against it at sixty days, and, with the proceeds, meets the bill drawn on it from New Orleans. The sterling bill is then met by the sales of cotton four months after it was bought. In the mean time, the bill on New York passes into the hands of the western debtors of New York, who send it thither in payment of goods purchased. The sterling bill is sold to the New York importer, who remits it abroad in payment of goods imported. The receipts of cotton and sugar have been very large of late years, but the quantities of western produce resulting from the more rapid settlement of the land under the influence of the railroads, have also greatly increased. In 1840, the value of cotton, sugar, and tobacco received was $36,124,275, leaving but $9,591,770 for western produce. In the year of famine the aggregate receipts at New Orleans rose to $90,033,251, of which $42,599,361 was western produce. In 1857, those articles were valued at $49,009,976; flour and grain counting in that year for nearly $15,000,000. By means of time bills, New Orleans thus furnishes a large capital to dealers; and in years of economy and re-

trenchment, when the purchases of goods are diminished, it shows a large inward current of specie. In 1851, California supplied a good deal of gold at that point, but changed direction after the establishment of a mint at San Francisco, and the receipts of specie were small at New Orleans in 1855—a speculative year. They became large with the panic year, and have since so continued. The large sales of produce bring a balance in favor of that point, giving great stability to its banking institutions.

While New Orleans thus expanded its trade, and grew in wealth under the influence of western production, the proportion that it enjoyed was by no means the largest. Each Atlantic city had made efforts to obtain a share, and, with more or less success, Canada sought to attract it down the St. Lawrence. New York built two railroads to aid the canals in connecting the lakes with tide water. Boston formed a connection with the Hudson river, and another with the lakes at Ogdensburgh. Philadelphia improved its hold on Pittsburg. Baltimore thrust out its iron arm to Wheeling, and all these offered inducements to trade. The tonnage of these works shows the progress of trade:—

	Tons.	Tons.
Erie canal, 1840		1,416,046
New York canals, 1858,	3,344,061	
New York Central railroad, 1858,	888,791	
New York and Erie, 1858,	978,066	
Northern, Ogdensburgh to Boston,	177,728	
Pennsylvania, to Philadelphia,	530,420	
Baltimore and Ohio, to Baltimore,	876,239	6,745,105
Increase in tonnage,		5,329,059

The valuation of this tonnage is nearly $350,000,000 per annum, and this affords an indication only of the wealth which has passed eastward. Thus, in 1840, the value of western produce, that found market by New Orleans and the Erie canal, was $51,000,000; in 1858, it was nearly $400,000,000, or an increase ten-fold, and on this mainly has the prosperity of the eastern cities depended. The exports of the southern ports have grown mostly with the direct export of cotton, and those at the north have added gradually food and manufactures thereto. The general course of trade has been to centralize imports in New York.

Charleston owes its origin to a stock similar to that of New England, since a colony of French Huguenots, flying from persecution, settled there in 1690. It was not chartered as a city, however, until nearly a century later, viz.: in 1783, when its population was nearly 16,000. The commerce of Charleston is not extensive, but its facilities for internal communications are large, and enjoys the trade of the whole state, together with much of that of North Carolina and Georgia. A canal, twenty-two miles long, connects the Cooper with the Santee river. It has a fleet of steamboats that are running to the neighboring cities, and several lines of packets running to New York regularly. Its most important connection is, however, the South Carolina railroad, running 136 miles to Hamburg, on the Savannah river, opposite Augusta, Georgia. The population and business have been as follows:—

	Population.	Imports.	Exports.
1790,	16,359	$4,516,205	$2,693,268
1820,	24,780	3,007,113	8,882,940
1830,	30,289	1,054,619	7,627,031
1840,	41,137	2,318,791	11,042,070
1850,	56,284	1,933,785	11,447,800
1858,	62,000	2,070 249	16,888,262

The importations have not apparently increased, while the exports have grown in proportion to the improvement of means of intercourse with the interior, affording better freights outward from Charleston.

Baltimore was laid out as a town, by Roman Catholics, in 1729, and up to 1765 it contained but fifty houses. The persuasion of the founders still predominates. It is situated on the Patapsco river, fourteen miles from Chesapeake bay, and two hundred miles from the ocean. The harbor is a very fine one. The city enjoys great facilities for commerce, and possesses the trade of Maryland and part of Pennsylvania, while it has of late obtained a good share of that of the western states. It was the great tobacco market of the country, but Richmond now rivals it in that respect. As a flour market, it has few equals. The building of railroads to connect with the interior has greatly promoted the city trade, which has progressed as follows:—

	Population.	Imports.	Exports.
1790,	13,503	$6,018,500	$2,239,691
1800,	26,514		12,264,331
1810,	35,583		6,489,018
1820,	62,738	4,070,842	6,609,364
1830,	80,625	4,523,866	3,791,482
1840,	102,313	5,701,869	4,524,575
1850,	169,054	6,124,201	6,967,353
1858,	218,612	8,930,157	10,442,616

The importations have been mostly followed with increase in exports, that have

been promoted since 1850 by the opening of the Baltimore and Ohio railroad.

PHILADELPHIA, at the close of the last century, was the first city of America, and since that period, although it has not ceased to expand in wealth and population in a ratio far beyond the examples of the old world, yet New York, by force of natural advantages, has come to exceed it as a commercial city. Its resources for manufacturing are such, however, as to have given it a high rank in the interior trade of the country. The water-power of the neighborhood is very important, and rails and canals give it command of limitless supplies of raw materials, coal and iron in particular. The position of the city was early improved by the construction of canals to the extent of 336 miles, at a cost of $24,000,000; and seven lines, composed of twelve railroads, of 567 miles in length, radiate to every point of the compass, having cost $53,716,201. The canals and roads have swollen the coal receipts of Philadelphia from 365 tons in 1820, to 7,781,100 tons in 1859, valued at nearly $35,000,000 per annum. The population and external trade of Philadelphia have been as follows:—

	Population.	Imports.	Exports.	Total Valuation.
1684,	2,500			
1790,	42,520		$3,436,893	
1820,	112,773	$8,158,922	5,743,549	$40,487,289
1840,	220,423	11,680,941	8,841,599	99,321,881
1850,	340,045	12,066,154	4,501,606	
1858,	568,034	12,892,215	6,036,411	155,697,669

The city of Philadelphia was first settled in 1627 by the Swedes, but was regulated and laid out in 1682 according to the views of William Penn, and its population in 1684 was 2,500. The city is one hundred miles from the ocean, eighty-seven miles from New York, and 130 miles from Washington. It is five miles from the junction of the Schuylkill and Delaware rivers, extending from one to the other, and its harbor is on the Delaware, or eastern side. Vessels drawing more than twenty feet water cannot reach Philadelphia, and the navigation for large ships below is a little difficult. Pilots take inward bound ships at sea. These circumstances have aided to give Philadelphia less of a commercial character as compared with the commanding harbor of New York.

If the foreign commerce of Philadelphia does not show large, owing to physical difficulties, the internal commerce, from sales of manufactures and goods imported at New York, are very large—and the real growth of the city is indicated by her external trade less than that of, perhaps, any other city of the Union. The census of 1860 has been estimated at 650,000. The manufacturing industry of Philadelphia has increased in a remarkable ratio. In 1845 the capital employed in the city proper was $18,000,000, the production $21,000,000, and of the neighborhood $33,000,000.

In 1858 the capital invested in the various industries was given at $72,000,000, employing 132,000 hands, and producing $145,348,738 of annual value. In the vicinity the amount is $26,500,000 additional. These figures denote that Philadelphia is probably the greatest manufacturing city of the Union, and will continue to grow in that direction by the force of the same influences which tend to give New York the commercial preponderance. The trade of the city is on a grand scale, and second to none in the world for magnitude of operations, or successful method in conducting them. A leading store of that city is a model of mercantile method. Each department in the store is alphabetically designated. The shelves and rows of goods in each department are numbered, and upon the tag attached to the goods is marked the letter of the department, the number of the shelf, and row on that shelf to which such piece of goods belongs. The cashier receives a certain sum extra per week, and he is responsible for all worthless money received. Books are kept, in which the sales of each clerk are entered for the day, and the salary of the clerk cast, as a per-centage on each day, week, and year, and, at the foot of the page, the aggregate of the sales appears, and the per-centage that it has cost to effect these sales is easily calculated for each day, month, or year. The counters are designated by an imaginary color, as the blue, green, brown, etc., counter. The yard-sticks and counter-brush belonging to it are painted to correspond with the imaginary color of the counter; so by a very simple arrangement, each of these necessaries is kept where it belongs; and should any be missing, the faulty clerks are easily known.

All wrapping paper coming into the store is immediately taken to a counter in the basement, where a lad attends with a pair of shears, whose duty it is to cut the paper into pieces to correspond with the size of the parcels sold at the different departments, to which he sees that it is transferred. All pieces too small for this, even to the smallest scraps, are by him put into a sack, and what is usually thrown away by our merchants,

yields to the systematic man some $20 per year. In one part of the establishment is a tool closet, with a work-bench attached; the closet occupies but little space, yet in it is seen almost every useful tool, and this is arranged with the hand-saw to form the centre, and the smaller tools radiating from it in sun form; behind each article is painted, with black paint, the shape of the tool belonging in that place.

It is, consequently, impossible that any thing should be out of place except through design, and if any tool is missing, the wall will show the shadow without the substance. The proprietor's desk stands at the further end of the store, raised on a platform facing the front, from which he can see all the operations in each section of the retail department. From this desk run tubes, connecting with each department of the store, from the garret to the cellar, so that if a person in any department, either porter, retail, or wholesale clerk, wishes to communicate with the employer, he can do so without leaving his station. Pages are kept in each department to take the bill of parcels, together with the money paid, and return the bill receipted, and change, if any, to the customer. So that the salesman is never obliged to leave the counter; he is at all times ready either to introduce a new article or watch that no goods are taken from his counter, excepting those accounted for.

By a peculiar method of casting the percentage of a clerk's salary on his sales, coupling it with the clerk's general conduct, and the style of goods he is selling, a just estimate may be formed of the relative value of the services of each, in proportion to his salary. By the alphabetic arrangement of departments, numbering of shelves, and form of the tools, any clerk, no matter if he has not been in the store more than an hour, can arrange every article in its proper place; and at any time, if inquired of respecting, or referred to by any clerk, the proprietor is able to speak understandingly of the capabilities and business qualities of any of his employees.

Boston was settled early in the seventeenth century, and in 1684 was the most populous of the Atlantic cities, having 6,300 inhabitants. It is 210 miles from New York, and although possessed of one of the finest harbors on the coast, it had no facilities for reaching the back country, which was for the most part rocky and mountainous, until railroads were constructed. Its early trade was in navigation and the fisheries. Its first adventure was in 1627, when a sloop, loaded with corn, was sent to Narraganset to trade, and made an encouraging voyage. Its inhabitants soon became rich by doing the trade of others in their celebrated ships, until manufacturing became possible. The energy and intelligence of the race, when turned in that direction, soon drew large profits from their industry, and more freight for their coasting tonnage, which increased as the numbers engaged in manufacture required more food and raw materials. The greatest start was given to the trade of the city when railroads had laid open even the remotest regions of the interior to its enterprise. The general course of its population, trade, and valuation has been as follows:—

	Population.	Imports.	Exports.	Valuation.
1684,	6,300			
1790,	18,038	$5,519,500	$2,517,651	$6,990,890
1820,	43,298	14,826,732	11,008,922	38,288,200
1830,	61,392	10,453,544	7,218,194	61,780,210
1840,	93,979	13,309,925	9,104,862	102,101,201
1850,	138,788	30,374,664	10,681,763	180,000,500
1855,	162,629	45,113,774	28,190,925	249,262,500
1858,	177,902	40,432,710	20,979,853	262,014,500

The exports of Boston have taken a great start since 1830, and since then there have been constructed nine lines of railroad, which radiate from Boston in every direction; placing every town in New England in connection with it, and by continuous lines, every city of the Union, from Bangor to New Orleans, St. Louis, Chicago, and St. Paul. The running of the line of Cunard steamers gives it a European connection more prompt and regular than any other. Its extensive trade shows the effect of these connections, and its taxable valuation the wealth that accumulates from its manufacturing industry. That valuation is this year (1860) $276,339,900.

CHAPTER III.

NEW YORK—TELEGRAPH—EXPRESS—GOLD.

The city of New York, at the close of the revolution, was the second city of the new world, taking rank after Philadelphia. Its internal trade was limited to the capacity of the Hudson river, but its traders pushed across to Lake Champlain, and even to Lake Ontario, whence they drew skins and furs from the Indians, and brought down some of the produce of Vermont and New Hampshire. At this date there was little trade west of Albany. The trade was mostly with the

towns on the east side of the river, and with Rutland, Burlington, and other Vermont towns, as well as the western towns of Massachusetts. Remittances were made from these towns in ashes, wheat, etc., and during the embargo and war, smuggling was very extensively carried on, taking pay in specie. The goods went up the river in sloops. The New England cities had equal commercial advantages, and Philadelphia enjoyed many others in addition. The valley of the Hudson furnished, however, large supplies of farm produce during the wars of Europe, which gave a preponderance to the New York trade, and it began to gain strength. In 1807 the passage of Fulton's steamer to Albany gave a great impulse to the river trade. Her statesmen, however, soon saw the necessity of a more extended inland communication, and the canal, which had been projected before the peace, became a legal reality in 1817, and a physical fact in 1825. The capital of the New York merchants began to be invested in enterprises which resulted in centring trade in the city. The canal connection opened the vast circle of the lake trade to New York city, and poured into its basin the western farm produce at rates far below what the same articles could be raised for at the east. As a necessity, therefore, New York became the point of supply, not only for the foreign trade, but for the neighboring states. The growing manufactures of Philadelphia and Boston found cheaper food in New York than in their own neighborhood, and North river sloops and schooners continued the Erie canal to the Delaware and the Charles river. As new routes to the west, and more extended settlements in that region opened new sources for the supply of produce, and new markets for goods, the tendency was to New York. The capital engaged in commerce at that point being the largest, produce found readier advances and more prompt realization, while the large imports and consignments of foreign goods made the assortment larger and the average cost less there than elsewhere. The same circumstance that drew produce into New York bay, also drew eastern manufactures to the same point, and this increased the assortment which was to be found at the common centre. The fact that produce tended generally to New York, as a matter of course made it the centre of finance. The United States government, and bank, and mint had been established at Philadelphia. Those circumstances could not, however, control the currents of trade. The pork, and corn, and wheat of the west, the manufactures of the east, the tobacco, cotton, and rice of the south, being sent to New York to obtain advances, it followed that from all quarters bills drawn against produce ran on New York. Those bills found buyers among the country dealers, who, in all directions, wanted to remit to New York to pay for goods there purchased. Capital could not keep aloof from the focus of transactions, and all loans to be made or financial operations to be conducted, sought New York. For the same reason all funds seeking investments went there to find them. Produce, goods, raw material, capital, all operated in reference to New York, and the foreign trade was the motor which kept up the circulation. This tendency to a centre once commenced, cannot be turned, but it strengthens with the general increase of the country. The other cities strive to turn a portion of the current each in its own direction, but the result of those efforts is only to increase the aggregate trade of the whole.

If the amount of specie exported, and for the most part that is but a transit trade from California, is deducted from the New York account, New Orleans will be found to exceed it in exports by $32,000,000. The lines of communication with the interior, and the facilities for advancing on produce, drew to New York a considerable portion of the western produce, and operations are now there carried on which partake of a speculative character. Pork, flour, etc., are often sold largely for future delivery on the New York exchange; and much of the cotton shipped from southern ports direct to Europe, is resold in New York many times before it arrives out. When the cotton is put on board ship for Liverpool, samples and bills of lading are sent to New York, and the cotton sold "*in transitu*"—that is, during its passage to Europe. Should the ocean telegraph come into operation, this system could be carried to a much greater extent, since news from the Liverpool market could be received at least thirty days after a cargo is shipped before its arrival out; and in speculative times, other articles will be subject to the same operations. The export of corn first became a large business in the famine years of 1847–8, and the subdivisions of qualities, round and flat, yellow,

white, etc., then manifested themselves. In the present year, the crops are greatly beyond any former experience, and every available means of transportation is taken up to convey it to market. The realization of them depends upon the quantities that Europe may require, and this depends upon the events of a few weeks. The steamers now give intelligence in ten days, when formerly thirty were required. If the ocean telegraph had worked, the price of corn in Liverpool would have been known simultaneously in Chicago, and water transportation pressed to its utmost before the frost closed it.

The proportion which each of the cities named enjoys of the aggregate export trade of the whole country, is seen in the following table:—

EXPORTS OF THE LEADING ARTICLES OF DOMESTIC PRODUCE FROM THE CHIEF ATLANTIC CITIES.

	Boston.	Philadelphia.	Baltimore.	New Orleans.	New-York.	Total.
Beef	$79,427	$281,010	$52,219	$170,715	$1,312,957	$2,081,856
Pork	379,998	205,154	317,737	154,101	1,169,707	2,852,942
Lumber	368,597	46,901	49,753	13,425	751,334	3,428,530
Furniture	328,654	24,274	22,704	3,894	331,281	922,499
Stoves, &c.	5,140	2,749	53,983	395,550	960,390	1,975,852
Butter	61,836	83,289	74,043	36,048	236,928	541,863
Cheese	15,113	9,742	21,797	9,626	561,451	731,910
Hams, &c.	34,559	68,072	75,056	184,634	1,485,958	1,957,423
Lard	144,047	163,319	254,713	1,962,121	1,172,950	3,809,501
Tallow	42,813	176,258	9,286	149,206	258,226	829,970
Cotton	815,968	87,512	10,985	73,152,768	8,368,500	131,386,661
Tobacco, manufactured.	404,569	52,138	55,965	5,929	1,113,428	2,400,115
" leaf.	143,653	78,019	3,430,287	7,564,247	1,482,970	17,009,767
Rice	92,128	76,834	72,743	18,097	664,969	1,870,573
Naval stores	34,076	34,419	22,577	7,161	1,219,553	1,464,210
Brass manufactures	45,024	34,398	1,205	973	1,705,426	1,985,223
Iron "	402,228	755,403	75,661	40,719	1,922,734	4,059,528
Cotton "	1,860,885	62,642	442,863	169,011	2,113,225	5,651,504
Wood "	584,685	193,578	156,614	23,233	413,806	2,234,678
Gold and silver coin	3,679,027	124,887	62,050		14,917,585	19,474,040
" bullion.	917,395			1,009	12,456,256	22,933,206
Corn	30,112	439,017	334,576	682,839	1,331,570	3,259,039
Wheat	3,491	251,991	308,657	632,221	5,451,491	9,061,504
Flour	955,257	1,293,228	2,909,679	2,257,152	7,017,790	19,328,884
Spirits	753,693	18,385	43,169	65,135	729,220	1,993,845
Other articles	3,191,437	1,050,005	1,220,064	570,710	14,253,857	30,513,151
Total	$15,273,792	$5,613,224	$9,878,386	$88,270,224	$83,403,564	$293,758,279

The opening of the Erie canal, in 1825, gave the first decided impulse to the city business, and produced a powerful effect upon its prosperity. The impulse was prolonged under the bank excitement that exploded in 1837. The effect of railroad extension at the west has, in the last fifteen years, had a still more powerful influence upon its growth. The following table gives the population, imports, exports, and taxable valuation, for a long period:—

	Population.	Imports.	Exports.	Valuation.
1684,	2,600	$4,579	$10,093	
1750,	10,381	267,180	35,632	
1790,	33,191	10,739,250	2,505,415	
1800,	60,489	26,201,000	14,045,079	$25,645,867
1820,	123,706	23,629,246	13,160,913	69,530,758
1830,	202,589	36,624,070	19,697,983	125,288,518
1840,	312,710	60,440,750	34,264,080	252,233,515
1850,	515,547	111,123,524	52,712,789	286,061,816
1855,	629,904	164,776,511	113,731,288	486,998,278
1860,	821,113	238,718,718	138,036,550	577,230,656

Up to the year 1840, the business of the west depended mostly on the canal, and by way of New Orleans. The city held then a kind of monopoly, but, like all monopolies, it cramped the producers. The large expenditure at the west for bank capital, in the years 1836–37 caused a great credit demand for goods upon New York, which was generally met. The facilities granted in those years by the American bankers in London, for the purchase of goods on credit, placed these within the reach of any dealer who could make a fair show; and the goods obtained on credit required to be sold on the same terms. The rivalry thus produced among those who could command goods, was very great, and the utmost efforts were made to obtain paper in exchange for goods. The banks showed the same eagerness to discount the paper that the merchants did to obtain it, and the mass grew in a rapid ratio, from the small country dealers to city jobbers and importers, and London bankers, until the

Bank of England, in August, 1836, issued a warning to those houses to curtail their credits. This was the "hand writing on the wall"—settling day had come. The business south and west had then been eagerly sought after by the jobbing-houses, who employed drummers to haunt the New York hotels and beset every new-comer with temptations to buy. The drummers of the day had usually no limit placed upon their expenses, which were intended to cover the "attentions" shown to the country dealer. These revelled in the dissipations of the town at the apparent expense of their entertainer, and they could do no less than buy of such attentive friends, when the bill, whether they discovered it or not, would often cover their own and other people's expenses. The mode of business then in vogue, when banks were multiplying so rapidly all over the country, was to take the paper of the dealers, payable at their own local bank. It was supposed that the dealer would be sure to keep his credit good at home. The result showed that the dealer, in order to pay the New York bill, got an accommodation note done at his bank, which thus became the debtor of the New York collecting bank. By this means, although the New York merchant got his money, the west was still in debt to the east; and this continued as long as capital was sent from the east to the west to start banks. The whole system exploded in 1837, and the bank capitals were sunk in these credits. From that date there was to be "no more credit," a threat which has often been repeated without being put in practice. The only permanent change seemed to be to require notes payable in New York. Those are given at dates longer or shorter, but the system is an improvement on the old mode. With 1840 also began the railroad building, which brought stocks and bonds to New York for negotiation, and the money being expended west promoted consumption of goods, which caused a greater demand in New York. The exports of produce increased at higher prices, and the sales of these gave the producers the means of buying more goods. In 1838, thirty-one years after the first successful steamboat, arrived the first ocean steamer, the Sirius, at New York, marking a new era in foreign trade, since communication with Europe was now reduced to half the time, a circumstance which was equal to an increase of capital, engaged in commerce, because it could be turned oftener. From that date ocean steam navigation rapidly increased. The electric telegraph of Morse began a few years later to exert its influence in facilitating intercourse, and the express system was also introduced. It is somewhat singular, that with the breakdown of the old credit system and the adoption of the plan of making notes payable in New York, four important elements, having the highest centralizing tendencies, began to operate. These were, first, ocean navigation; second, the more extended construction of railroads; third, the invention and construction of telegraphs—there are now 25,000 miles of wires, that have cost over $2,000,000, consolidated in one company, and New York is the centre for the whole: and, fourth, the express system of intercourse. All these, centring in New York, came into active operation at the moment when gold was discovered in California, to give them an extraordinary impetus. The express business is peculiarly American, and has grown with a vigor which places it among the most important trading facilities of the country. In the spring of 1839, a year after the arrival of the Sirius at New York, W. F. Harnden, then out of employ in Boston, was advised by his friends to get a valise and take small packages and parcels from his acquaintances in Boston to their correspondents in New York, and return with what they had to send, making a small charge for his services. He did so, and discovered that a great public want was to be supplied. He soon contracted with the railroad to send a car through with his goods, and with business tact he opened offices, employed messengers, pushing the business with American energy. In 1840 an opposition was started by Adams. In 1841 new fields were explored by Harnden, who ran an express between Albany and Boston, and one between Albany and New York. Route after route was then opened to express agents, penetrating further and further, and multiplying their lines in the densely settled portions of the country; not only between cities, but between different portions of the same city. In 1845, Buffalo was reached by Wells & Co. In 1849, the gold fever brought California within the scope of express operations, and from San Francisco as a centre, "pony" expresses ran to the diggings with great success, placing the solitary miners of the Sierra Nevada in direct connection with the mint and with Wall street. As these busy agents continued to

increase, and lessen the difficulty of communication, trade multiplied as a consequence. The telegraph had also penetrated most direct routes between cities, and that instrument came in aid of the express, which executed an order transmitted by telegraph. Instead of waiting the slow course of the post for a reply, the telegraph gave an instantaneous order for goods that the express conveyed. Thus, the three months that would once have been consumed in coming from Cincinnati for goods and returning, was reduced to three days. All the cities of the union were brought within similar speaking distance. In 1850 it was estimated that the expresses travelled twenty thousand miles daily, in discharge of orders, and the service has since doubled. Steam, the telegraph, and the express, had thus greatly facilitated trade, by making the long semi-annual expeditions to the large cities, for the purchase of goods, unnecessary. The small dealers could now buy frequently in small parcels the goods they found most in demand, instead of buying a six months' stock, and taking the risk of the goods being well selected for the market. This also brought with it another change. It had been the case, that most of the goods sent to America formerly were the surplus stock of the British manufacturers. That is, where patterns had been got up for the home consumption and the regular trade supplied, there would remain a stock that had become comparatively dead by age. This dead stock was "good enough for the American market," and was sent out almost for what it would bring, and being transported into the interior for six months' sales, became a sort of Hobson's choice for the consumers. When, however, frequent arrivals of new goods came to be laid before the customers, they immediately displayed a taste and exercised a choice. Ill-assorted goods would now not sell at all. English refuse became of no value, because American taste was developing itself with considerable strength. The customer was no longer to take what was laid before him; but in order to sell, the dealer was now to exercise his sagacity as to what would please his taste in selecting it, and his judgment in buying it. The manufacturer of dry goods was obliged to follow in the same direction, and the department of designers became important. It was now that the sagacity and taste of the factory agents were felt to be an indispensable element in the success of a concern. The production of a design was promptly followed by the judgment of the public, and manufacturing became, as it were, one of the fine arts.

The joint operation of these new agencies manifested itself in 1850, when the west had become enriched with the large sales it had made of its produce during the famine year, and the railroads and canals, then in operation, had profited largely by the high freights and tolls paid by produce on its way to market. The gold of California was now in its turn adding a new stimulus to the business of the city. In 1852 the Michigan roads had opened through to Chicago, and New York was now, by rail, within thirty-six hours of that city. The projection and construction of railroads went on rapidly, constantly adding to the business of New York—the common centre, whence the means to build were drawn, and to which these means returned in the purchase of goods. The Crystal Palace, in 1853, drew great numbers of persons to the city, and gave a start to retail trade, which had an important effect upon the value of real estate and the location of business. In the above table we find that the imports into the city from abroad rose fifty per cent. in the five years to 1855, and the total valuation two hundred millions. This valuation followed the changed location of business. In the speculative times of 1836-7, the old Pearl street house, in Hanover square, was the headquarters of country dealers, and that square the centre of the dry goods trade, around which all others agglomerated. The great fire of December, 1835, by which the lower part of the city and a value of $18,000,000 was destroyed, broke up the location, which, however, was speedily rebuilt, and, with the rebuilding, the Merchants' Exchange was enlarged and reconstructed at an expense of $1,800,000. The usual fate overtook occupiers in the inordinate demands of landlords, and the leading firms pushed across Wall street and made Pine and Cedar streets the great centre. Gradually firm after firm ventured upon Broadway, which, in 1845, was visited by a fire that caused the rebuilding of the lower portion, no longer for dwellings, but for substantial stores. One firm went up to the corner of Rector street, one-quarter of a mile from the Battery, and took the site, long vacant, of the old Grace church, at a lease. "Too high up," said conservatism, as the crowd rushed by, and the great retail

firm of Stewart & Co. took the old Washington hotel at the corner of Chambers, and occupied the block with a marble store which has no equal in any city. Here importing, jobbing, and retailing is carried on to the extent of $10,000,000 by one who, on the cash principle of dealing, has increased a capital of a few hundreds to millions, employing two hundred and fifty clerks and others. There were handsome stores before that was built, but this may be said to have commenced the era of expensive structures. The great retail dry goods firms of Lord & Taylor, Messrs. Moore; the jewellers, Ball & Black; the clothiers, Brooks & Co; the porcelain dealer, Haughwout, and troops of others, have lined Broadway with marble; while the wholesale dealers, invading the old college ground, have covered it with marble stores of great size and beauty. The centre of business which, twenty years since, was within a quarter of a mile of the Battery, is now a mile distant, and the value of real estate has followed like a "ground swell," reaching incredible rates. A marble store on Broadway is now rented for $50,000 per annum, or a thousand dollars per week. A lot on Broadway, near Broome, sold lately at private sale for $110,000; it had been bought at auction, in 1852, for $35,000. An elderly gentleman present remarked, "This lot was part of the old Colonel Bayard farm, and was given by the colonel to his barber for a hair-dressing bill. I have seen it sold at auction four times, and each time people decided the buyer crazy to give such a price." The "Central Park," to cover 800 acres, was projected, and has since been prosecuted, at a cost of $5,406,193, having employed, in the four years, over 10,000 men.

The city has spread toward the upper wards through the agency of railroads, which have enabled workmen and merchants to live further from their places of occupation than formerly. The importance of consuming as little time as possible in coming from and going to occupation made it requisite formerly, when roads were barely paved, and conveyances not to be thought of, that persons should live near their business. The old cities of Europe are thus built with narrow streets and very high houses, to accommodate many in a little space. Modern cities are built on a broader scale. Omnibusses first came into play to give a greater breadth to the dwellings of the people, and horse-railroads have still further expanded the area. The island of Manhattan, from the Battery, which forms a point, runs northerly between the North and East rivers. From the park the city spreads in a fan-like form east and west, and from that point radiate the railroads. Of these there are six, including the Harlem, which runs by the Fourth avenue to Albany. The four other roads run on as many avenues, and carry their passengers three and five miles, returning with them to a common centre every morning to business. These four roads cost $4,600,000, and the receipts for 1859 were $1,481,010. In 1858 they transported 27,900,388 people, and in 1859, 32,718,351. If the Brooklyn railroads are included, the receipts would be swollen to $1,978,340 for 1859, and the number of passengers to 39,560,000 per annum. The passengers on the Brooklyn roads are mostly coming to business in New York, and, therefore, are part of its trade. The telegraph also comes to play an important part in the city business. Many large firms, whose offices are in the lower part of the city, and warehouses and manufactories in the upper part, connect the two by telegraph, to transmit orders and for information. All the police stations connect by telegraph to give alarms of robbery, and fire alarms are also conveyed by the same means. The "time ball" also operates by telegraph. On the top of the Custom House, sixty feet high, is a mast on which slides a black ball some 20 feet in diameter. This can be seen from any part of the bay. It is hoisted to the top of the pole, and is so arranged, that the moment the sun reaches the zenith, by observation, at Albany, it is released by electricity and falls, marking twelve o'clock, by which every ship-master in the port may set his chronometer.

All the railroads, continually running night and day, aided by twenty-five stage routes, on which run four hundred and forty-four two-horse stages, bring the business and working population to their occupations, and back at night. By all these conveyances there travel in New York every year a number of persons equal to twice the population of the whole United States. This makes a much larger breadth of land possible to a great city than otherwise, and allows of the thorough concentration of business. The country dealer, in making his purchases of different goods, is prone to buy of those nearest to his most important bills. The dry goods are to be selected, and the hard-

ware, earthenware, cutlery, millinery, and the thousand and one subdivisions into which business, formerly one, now branches, are also to be purchased to the best advantage, and much time spent in going from one to the other cannot be afforded. Hence the importance of concentration and the value of "business sites." Manufacturers of small wares also spring up in such locations. The transformation in trade itself is quite as noticeable as the change in its locality; and there are those whose heads are not yet silvered, who can remember when the mode of doing business bore less resemblance to its present fashions, than the pants now in vogue do to the knee breeches worn by our grandsires. Formerly, a young man engaged in business for himself only after a long course of training, and then usually by uniting himself with his seniors; now beardless clerks dash into trade as if it were a holiday sport, requiring only a full flow of animal spirits. Then the principals of every house were working men, who lived frugally, and waited until their fortunes were made before they spent them; now, a start in business gives sufficient warrant for a generous expenditure, and many are too impatient to wait for their income, but spend the fortune they have—in prospect. Then, the word of a merchant was as good as his bond, and, with a few exceptions, his honesty was proverbial; now, there is more finesse in the place of open dealing, and the exceptions almost balance the rule. Then, insolvency was a bitter word, and failures in business from recklessness brought overwhelming shame; now, the gazette has lost its terrors, and bankruptcy is to many but a slight annoyance. Perhaps, however, the greatest difference which purchasers who come to the New York market are called to observe, is in the division of the goods. Formerly, a dry goods jobber kept a full assortment of every thing in his line, and it required no little tact and exercise of memory to keep each line full. Now, one house confines itself to woolens, another to cottons, another to silks, and yet another to fancy articles; and even these are subdivided, as in woolens one will keep tailors' goods, another dress goods and women's wear; in cottons, one confines himself to prints, another to the plain goods; in silks, we have establishments for piece goods, and others for ribbons and smaller articles. The tendency is to a still more minute division, and thus we have a dealer in hosiery, a dealer in lace, a dealer in perfumery, a dealer in pocket handkerchiefs, a dealer in shawls, and one house keeps nothing but suspenders! Twenty years since the manufacture of clothing became a separate business, and it has since subdivided into many branches. In ten years more there may be an establishment for spool cotton, and another for corsetlaces, if such instruments of torture shall then be in vogue. We are not prepared to say that the division of goods here noticed may not be a positive convenience, although it certainly increases the labor of the purchaser. It may, however, induce more method in the selection of goods, and we think it has already led to some change in this respect. Buyers now make, to a considerable extent, a corresponding division of their time, and one day is set apart for woolens, another for silks, and so on through the whole catalogue. Could some staid customer of the last century, awaking from a Rip Van Winkle sleep, be set down at this day in some of our thronged thorough-fares, he would get sorely jostled and footweary before he had made a black cross against all the articles upon his memorandum.

The supplies of goods for the country dealers are derived from city manufacturers, mostly small wares; domestic goods from neighboring states, importers of goods, and agents of foreign manufacturers. The local manufactures are generally purchased by the jobbers to make good their assortments, as is also the case with hardware, and most articles of domestic manufacture, except the productions of the large mills, who keep agents in the city for the special sale. These grant more or less credits, and sell goods for paper to turn into money. The agents of foreign manufacturers tempt buyers by granting long credits for paper which may be converted into money at the banks. The regular importing houses remit for their goods when they give the order, and sell at six and eight months to the jobbers, the largest purchases being made in the spring and fall; sometimes through the auction houses, whose paper is a favorite means of raising money. The jobbers, in their turn, sell at eight and twelve months' credit, seeking custom in the country by means of agents, instead of the old system of drummers, and allure buyers by the liberality of credits, depending upon the mercantile agencies for information in relation to the relia-

bility of the buyer. These agencies have ramifications in every town of the country, but their usefulness is not what was at one time expected from them. The jobbers grant credits far beyond their own capital, and when they buy at eight months and sell at twelve, their notes are to be discounted at the banks with the paper they have taken from their customers as collateral, to meet their own notes to the importers. In times of panic, like the fall of 1857, the banks refuse to do this, and then the importer must renew the paper or the bank grant the extension needed, to avoid absolute stoppage. The credits granted by foreign manufacturers at such times are not met. The lapse of time, with fair crops, generally brings up the payment of the country paper, and the "extensions" are gradually extinguished. The grocers who sell sugar, etc., do so generally at four months, and get their money before the dry goods people, who also come after the hardware and earthenware dealers. The supply of capital in the city, under these circumstances, brings to it the largest assortment of goods, and of course it is the best point at which to buy, the more so that at times there is an over-supply of goods, which being worked off at auction, realizes a loss sometimes of 25 to 30 per cent. to the importer and foreign owner, and of course to the advantage of the country buyer. The general attractions offered to buyers make it to the advantage of sellers elsewhere to send their merchandise to New York to meet the purchasers. Boston made recently an attempt to break up this, by establishing sales of her manufactures there, instead of sending them to New York. The force of centralization is, however, difficult to overcome, and the imports at New York show an increasing share of the arrivals into the whole country. Thus, in 1859, New York imported $220,000,000 out of an aggregate of $338,000,000; in 1840, $60,000,000 out of an aggregate of $121,000,000. The proportionate imports at the Atlantic ports, are as follows:—

IMPORTS OF CERTAIN GOODS INTO THE LEADING ATLANTIC PORTS, AND ALSO THE TOTAL IMPORTS INTO THE UNION.

	Boston.	Philadelphia.	Baltimore.	New Orleans.	New York.	Tot'l into Union.
Gold bullion	$1,975,795	$1,115	$9,950	$275	$269,833	$2,286,099
" coin	306,113	76,785	..	424,542	8,096,651	9,279,969
Silver bullion	112,085	..	2,500	..	271,027	408,879
" coin	3,613	36,683	..	4,096,034	689,533	7,299,549
Coffee	1,091,146	2,163,947	2,766,095	4,360,432	6,730,168	18,341,081
Tea	142,889	..	..	..	6,414,700	6,777,297
Linseed	2,211,684	..		..	940,077	3,243,174
Guano	28,539	..	195,470	..	242,648	525,376
Wool, free	2,493,470	30,501	130,690	..	1,173,075	3,843,320
" dutiable	137,036	..	4,528	2,714	4,961	179,365
Watches	184,900	117	..	20,388	1,980,864	2,118,838
Coal	37,361	5,606	2,402	16,448	521,774	772,925
Woollens	1,453,519	1,547,052	263,320	514,020	21,987,784	26,489,091
Cotton hose	33,881	235,246	139,546	70,691	1,625,833	2,120,868
" goods	2,010,601	1,180,172	184,848	1,385,594	9,917,270	15,057,398
" laces	500,682	4,093	281	50,138	2,274,033	2,845,029
Silks	1,621,388	76,491	5,254	356,843	19,238,760	21,471,488
Linen	532,836	551,531	73,224	457,098	4,823,264	6,527,894
Gloves	36,777	11,709	4,005	19,127	1,362,096	1,449,672
Window glass	141,308	5,299	..	22,879	454,344	626,747
Gunny bags and cloth	1,108,730	31,847	..	57,118	147,571	1,437,767
Iron, bar	1,016,541	298,186	95,376	119,476	1,610,970	3,318,713
" pig	218,695	74,612	4,069	47,650	329,785	739,947
" railroad	8,862	7,397	35,743	340,699	1,556,538	2,987,576
Cutlery	85,920	42,609	15,475	142,456	1,155,761	1,489,054
Jute	1,294,026	5,009	..	8,738	970,723	2,298,708
Leather	46,338	2,495	1,953	..	1,205,714	1,259,711
Hides	2,784,442	377,635	422,466	55,670	5,629,029	9,884,358
Molasses	717,742	223,616	183,352	30,263	1,414,168	4,116,759
Sugar	3,154,026	1,955,243	1,712,744	761,708	13,514,098	23,317,435
Other articles	14,939,245	3,935,373	2,656,766	5,794,083	53,727,835	100,099,063
Total	$40,432,170	$12,890,369	$8,930,157	$19,586,033	$170,280,887	$282,613,150

The aggregate imports at these five ports are thus $252,119,616, which, deducted from $282,613,150, leaves $30,493,434 as the imports of all other ports of the Union. The imports of coffee at New Orleans from Brazil, to go up the river, are large; and at

Boston, coffee and hides, from the same source, figure high. But both Baltimore and Philadelphia receive much coffee direct; in fact, that is the largest item of import at those two cities. Boston imports many materials for her manufacture—linseed, free wool, jute, hides, etc. Philadelphia also imports similar articles. The great mass of the goods for the consumption of the interior passes into the port of New York. It is to be borne in mind, however, that many of the importations at New York are really for Philadelphia, Albany, and other cities, even western ones. They are entered at the custom-house by a broker, who pays the duty and forwards them by express to their destination, for a small commission. The express, the rails, and the telegraph, facilitate such operations.

The gold and silver imported at New York are from various sources, but in the last few years have consisted mostly of doubloons and Spanish gold from Europe, to re-export to Havana for the purchase of the sugar crop. In 1857, that movement was very large, early in the year, to the island, and subsequently, when the stock of sugar accumulated very largely in New York, the gold came back from Havana to prevent it from being sacrificed. The bulk of the gold that forms the amount exported, is direct from California, and has been annually since the discovery, in sums of nearly fifty millions.

The gold extracted from the earth by the miners of California has a considerable degree of purity, and before refining establishments were set up in the state, sold at from $16 to $20 per ounce. Much was used as a currency. It was carried in little leather pouches, and weighed out to shopmen in exchange for goods. A large portion of it was carried to New York, in the pockets of home-bound adventurers, and sold in New York at such rates as were possible. The buyers mostly had it sent to Philadelphia, by express, at an expense of 3-8 per cent. It was then assayed and coined at the public mint, and the proceeds returned to the owner. This expensive and round-about process led to the establishment of a mint in San Francisco and an assay office in New York, where the miners themselves could deposit the dust and get the full value in return. When the dust is deposited, a certificate of weight is given and the gold in bars returned. There are a number of private refining houses in San Francisco, where the dust is cast into unrefined bars. Most of these are connected with banking houses, and the bars are the basis of exchange. The express companies deal in this gold. The miner now having a lot of dust, sells it to an express agent, or sends it down to a banker in San Francisco, who has it assayed and cast into bars. The value is credited to the depositor, less the commissions. The bars are mostly shipped to New York, and the bankers draw bills against them in favor of those who have remittances to make to the bank. The competition among the bankers reduces the rate at which these bills can be sold to a point that leaves apparently no profit, and it is charged in some cases that they draw at a loss, in the view of monopolizing the business. The refining leaves a small profit. The cost of shipping the gold to New York may be thus stated: freight, etc., $1 57; state stamp on bill, 20 cents; insurance, $1 50—making $3 27 on $100. But the insurer gets from the Mutual companies scrip, worth on an average 35 cts., which reduces the cost to $2 92. The bars sometimes command a higher price in New York than in San Francisco. Thus, a bar of 100 ounces, 880 fine, is at this moment worth *par* in San Francisco, and 900 fine it is worth 87½ cts. premium in New York. This price has reference to the gold only of the bar. There is some silver in each. Thus, in the bar 880 fine there is 88 ounces of gold, 11½ of silver, and 1-2 oz. copper. In the other, 90 oz. gold, 9 1-2 silver, and a half copper. This makes the gold worth ½ per cent. more in New York than in San Francisco, and reduces the cost of the bill to $1 92 per cent. It is evident that he who sells his bills at 2 per cent, makes but 8-10 of 1 per cent, or, including other items, a small loss. If the house feels strong enough to insure itself, it saves the insurance; but this must be more or less a risk to those who take the bills. Thus the operation is one of mere cost of shipment of the gold; but the control of so much gold on paper issued is an object with large firms. The higher value of gold at New York arises from the fact that it is the financial centre of the Union. The exchanges of the country with Europe and with the interior of the states turn there. The south ships its cotton, and tobacco, and rice; the west its produce; and the Atlantic states their manufactures. These, as we have seen, give an aggregate value of over $300,000,000 sent abroad in a year. The

shippers of these goods draw bills against them, and offer them for sale. The market of sale must be where the greatest demand for them for remittance exists. New York imports two-thirds of all the goods received into the country, consequently the demand is there the greatest for the bills, and they are sent there for sale. It happens that the great majority of bill-drawers are unknown to the buyers, hence there is hesitation in taking their bills. To obviate this, a number of large banking-houses connected abroad, and having great capital, buy the bills that have "bills lading" attached, and the goods sent to their correspondents abroad. In the seasons of the year when shipments are most active, these bills are plenty and low. They are then purchased and endorsed, and sold with the endorsement at a higher rate when the season advances and the cotton-bills run short. If the demand is active, and the rate of money higher here than abroad, the bankers draw on their own resources, and lend them the proceeds of the bills they sell on stocks or other securities. They are also the buyers of the gold bars as they arrive from California, and pay such rates as the demand for exchange, or the rate of money, or the price of gold on the continent, present or prospective, will warrant. A demand for silver to go to Asia, causes a demand for gold with which to buy it on the continent, and this demand draws upon New York, and indirectly upon the whole country. It is obvious that the bill business is thus mostly in the hands of large bankers. This grows out of the fact that there is abroad no market for bills on New York. Thus, the New York importer of goods, in order to pay for them, buys a bill on ships' specie, instead of ordering his creditor abroad to draw upon him, which would be done if a bill on New York were saleable in the London market. It is understood, that when such amounts of bills from the south and elsewhere are sent to New York for sale, the proceeds of those sales form a large fund due by New York to those sections. These funds are deposited in the New York banks, and by them employed in loans upon stocks, or in such other ways as will pay an interest. Thus the whole country contributes to the supply of capital at that common centre. The New York banks, some fifteen years since, in order to encourage that centralization, allowed interest of 4 per cent. on the funds so deposited. This caused a greater sum to be so employed, and imposed on the banks the necessity of lending it, in order to make a profit. The amount of these lying in New York varies from 16,000,000 to $35,000,000, according to the season of the year. The banks in all sections of the country that have such funds in New York do not draw against it directly in favor of those who want to remit to New York, but they use the funds to buy up their own or other paper cheap. The effect is to swell the supply of funds in New York, and at times foster speculation there.

The funds that accumulate in New York, make it also the mart for stock operations; and these are very large, as well for regular investments, as for merely gambling operations.

With the creation of any commodity whatever, there springs up almost simultaneously a class of persons to deal in it, and to appropriate more or less capital to its prosecution. This capital is most generally applied to the purchasing of it when it is thought to be cheap, in order to hold it until it can be disposed of to better advantage, or in advancing money to the needy seller. The persons so engaged, by devoting their time and attention to the subject of their traffic, reduce it to science, and soon determine and classify the kinds and qualities adapted to the markets and wants of the public. The dealing in stocks is comparatively of modern origin, and commenced with the credit system of the European governments, at the close of the seventeenth century, when William of Orange avoided the dangers that beset the throne of the Stuarts, by borrowing money instead of extorting it by illegal taxation like Charles I., or stealing it like Charles II. The moment that government stocks—or certificates of debt issued to the government creditors—made their appearance, they became subjects of traffic, and with the certificates of stock in corporate companies, formed the material for speculation, and the exchange markets, where the surplus wealth of communities seek investment, became the theatre for operations in securities. The American colonies had no stock debts or corporate companies, since little surplus capital existed for such investments. The paper money that they issued, however, afforded by its fluctuation many opportunities of jobbing at the expense of the public. When the revolutionary war broke out, the continental

money of the federal government gave a larger field for these operations, which were based mostly on the rapid depreciation of their value. Thus, a person would borrow a sum, returnable in the same description in a fixed time. Its value in that time having fallen, he could return it at a profit. Supposing the money to be par, a person would pledge a bag of $1,000 for paper; a fall of eight or ten per cent. in sixty days would enable him to redeem his dollars with $100 profit. In the time of the revolution, a stage driver, having a talent that way, made money in the traffic, and subsequently became the head of the largest bank and stock house of his time in New York, ending a long and respected life by suicide. This paper soon perished, and was succeeded by the government stock, representing the public debt. This was soon accompanied by United States and other bank stock, insurance, canal, mining, railroad, etc., to an immense amount. Up to 1825 the majority of the stocks were banks and insurance, but there was no regular stock market. There were brokers who bought and sold stocks, but there was no concentration of operations. In that year the legislature of New York authorized the New York stock board, which has since continued to be the stock market. Within the last few years a board of brokers has been started in Philadelphia and also in Boston. Their operations are, however, to a very great extent, based upon those of New York, with which they communicate by telegraph. The board of brokers sits with closed doors from 10 1-2 A. M. to 12 M.; an irregular session is held about 2 1-2 P. M. There is a president, a treasurer, and a secretary; the latter keeps a list of all the stocks dealt in in the market; the members are admitted by ballot after notice of nomination by one of the board. He must have been at least a year a broker, and on his admission pays a fee of $450. When the members are assembled, the president proceeds to call the list, and as each stock is named in succession, those who have orders to buy or sell make their offers, and the transactions are recorded, when they become binding upon the members. If any of these defaults he loses his seat until he can pay or arrange the claim. The theory of the board is that it is the reservoir where all stocks held by the public are brought for sale, and where all buyers come, through brokers, to purchase. The number of brokers is some 150, and the commission charged is a quarter of one per cent., that is to say $25 on $10,000. The board requires each member to charge not less than a quarter, but as most of them sell again for their customers for nothing, the charge is practically one-eighth.

The quantities of stocks to be dealt in have rapidly increased of late years. A late report of the Secretary of the Treasury gives an approximation of the amount of stocks now in the country; to that return we have prefixed the amount of the same at a previous date:—

	1840.	1859.
United States stocks	$25,000,000	$55,155,977
State stocks	174,906,997	210,487,000
113 cities' and towns' stocks	13,107,000	85,382,201
350 counties' stocks	1,500,000	15,927,292
1562 bank stocks	290,772,091	421,880,093
150 insurance stocks	40,101,000	70,500,000
400 railroad stocks	45,102,208	506,746,895
" bonds	40,897,792	411,199,702
16 canal and navigation stocks	31,219,911	35,883,913
" " bonds	19,207,101	22,130,569
45 mining and other co.'s stocks	10,101,201	44,208,006
" " bonds	1,000,000	3,971,201
	$692,915,203	$1,883,477,862

This vast increase of stocks is manipulated mostly upon the New York stock board, and the stocks are to a considerable extent caused to float by the sums sent to brokers by their correspondents in the country and neighboring cities, with which to "operate." The speculative transactions far exceed those of other kinds. The actual investments of capital are not large at the board. Those who take stocks for income do so of the issuers when the proposals are put out, and they hold them like the United States and state stocks, which rarely come on the stock exchange. The mass of the transactions then are of non-dividend paying stocks, that are the foot-ball of speculation, and so pay the operators profits. The brokers are, mostly cliques of operators, who, when the market is dull and prices are low, combine, as "bulls," to purchase, producing a rapid rise, in the hope, seldom disappointed, that the speculative community will be tempted by that rise to come in and buy; as they do so the brokers unload themselves upon the buyers, and then become "bears," combining to depress the market, and to compel a fall at least equal to the rise, skinning the outsiders in the process. The speculators generally buy on time, that is, to pay for the stock at their option, any day within thirty or sixty, as the case may be. In this way the buyer pays interest on the purchases. He may also sell to deliver at any day he pleases within a specified time, or "seller's option," or to

deliver at the "buyer's option;" he may borrow stock and sell it in the hope of buying it back cheaper on delivery; he may buy a privilege to deliver a stock at a certain price at a specified time, or not, as it suits him; or he may sell or buy a privilege of taking and paying for a stock or not as it suits him; he may buy cash stock and sell on time. To produce a fall, cliques will sell for cash all the stock they have or can borrow, and then offer time contracts without limit, until other holders are frightened and sell. Confederates keeping up a clamor to alarm the public at such times, all offers to buy are smothered, and orders to purchase are suppressed. On the other hand, a combination for a rise is accompanied by the most astonishing prophecies of a "good time." Considerable quantities are bought on time, the sellers hoping to get them cheaper. Meanwhile the cash stock is bought up and pledged for more money to repeat the operation; the demand for the stock bought on time runs up the rate, and the public are expected to come in with sufficient strength to let the clique all sell out at a profit, when they will be ready for a bear operation. There are numberless modes of varying and combining speculative operations, which would fill a volume. All these time operations were illegal until 1859, when they were all legalized, and a stock debt may now be collected like any other.

The amount of the transactions is immense. In 1840, the aggregate of sales for the month of June was $3,684,460; of this one-half was bank stock and one-half Delaware and Hudson canal. In June, 1857, previous to the panic, the sales reached $250,000,000, mostly railroad stocks. In the present year the sales have been for June nearly $70,000,000, mostly non-dividend paying railroad stocks. In a speculative year the transactions will run to two or three thousand millions. Those transactions require a great deal of money to conduct them, and these funds come to New York to a considerable extent from neighboring cities, as well as from the west. They also employ a large portion of the funds of the banks put out "at call," and also the proceeds of bills sold by large exchange houses. Thus we may suppose a house sells on the departure of a steam-packet $500,000 of sterling bills. This money is paid into bank, and is loaned out on stock securities at 7 per cent. on call, until, by a succeeding packet, it may be called in and remitted in gold to Europe. This operation, on a large scale, will induce the banks to call in their loans to protect their specie, and the value of money will rise in the market. The rule in stock speculation is loss, and the experience of the most fortunate dealers is that the interest and commissions absorb the whole average profits. The funds sent to New York, therefore, for stock-dealing, only contribute to the central profits.

If we were to throw into a tabular form the new agencies of business centring in New York, we should have results as follows:—

		Cost.
Ocean navigation, 14 lines,	45 ships.	$30,000,000
Telegraphs	20,000 miles.	2,000,000
Express companies	30,000 "	3,000,000
Railroads	2,000 "	128,000,000
City railroads	15 "	5,364,360
Canals	395 "	26,000,000
		$194,364,360

The number of strangers that are drawn to the city in a year by ocean steamers is nearly 50,000, and they fill the hotels that have of late taken such splendid proportions, and have been carried up to Twenty-third street and Broadway, a distance of three miles from the old business centre. The march of hotels up-town has been steady. The Astor House was, in 1833, the up-town house. From the Astor House to Chambers street was a long remove, in 1849. In 1852 the St. Nicholas advanced a mile to Spring street, and became not only the up-town, but the "upper-crust" of all hotels. In 1854, Niblo's Garden, on Prince street, was occupied by the Metropolitan; and, soon following, the Everett House, taking ground a mile higher, opened on Sixteenth street; and last year, superior in distance, size, magnificence, and expense, the Fifth Avenue Hotel opened on Twenty-third street. These magnates were accompanied by a crowd of lesser note: the New York, St. Denis, St. Germain's, etc., etc., all followed, and with each new opening the visitors seemed to spring from the walls to people and to pay. Extravagance is only an allurement. Indeed, the hotel-keepers seem to have followed the advice of Boyden, when he first gave popularity to the Astor. His cracker-baker complained that the waiters were inattentive: "Kill me two of them, and put it in your bill," he briskly replied. And to his partner, who spoke of the exactions of guests, he replied, "Furnish a gold-dust pudding, with diamond

plums, if they require, but charge accordingly." That is the secret of hotel-keeping in New York—let nothing be wanting, not even a sufficient charge. Immense waste, no doubt, attends the system, but it attracts. The splendid arrangements tempt many city families to take up their abode in them; and a small family, even at $2.50 per day per head, do better than to pay the extravagant rents demanded for fashionable houses, with the attendant expenses. That these things are not done cheaply, the bill of $91,000, presented to the city of New York by the Metropolitan Hotel for the entertainment of the Japanese ambassadors, is ample evidence. The numerous visitors to New York from the south and west, as well as the constant current of traders, better class of emigrants, and California passengers, fill the hotels of the lower parts of the city; and the whole mass, by their purchases for personal use, make an important part of the city retail trade, of which Broadway is the main locality. The records of arrivals show the average number per day at all the hotels is not far from 2,000, or the immense number of 730,000 per annum. This, at an average of $2, gives $1,460,000 for hotel-bills alone, but all the expenses cannot be estimated under $7,000,000. The facilities of railroads and ferries also induce a great deal of trade from surrounding cities and towns within a reasonable distance. Within an area of fifty miles there are few who do not do their shopping in New York, and very many of the small local shops send daily messages to the city to complete orders they may have received. On the other hand, a large quantity of manufactures that were formerly confined to the city are now sent long distances into the country, particularly in the winter, where they are done cheaply by those who are not dependent upon them for a living. The large circle of country thus loses its rural character, and partakes of the metropolitan nature. It follows that, as city localities become known for particular business, and visitors seek them to trade, all of that class of dealers seek business places there, and thus concentrate the business. The fixed population of the city is given by the census at 821,110, and, with the neighborhood more or less connected, the wants of 2,000,000 require to be met from the retail stores of the cities, in addition to the crowds of visitors from abroad. The retail trade is therefore a very important one, and its vigor, apart from the purchases of visitors, depends in some degree upon the cheapness of food. Where immigration has reached over 1,000 souls per day, composed of persons skilled in almost all employments, and all eager to obtain work, competing with those in the city who live by their occupation, and with those in the country, who are, so to speak, amateurs, it is evident the wages cannot be extravagant, and the amount that can be spared from them, after deducting house-rent and food, is not much in the average. Food is, however, the important item. When that is cheap, trade is more active. An indication may be afforded in flour. The quantity used in New York is 2,000,000 bbls. per annum. In some years the price has been as low as $4, in others as high as $15. The difference between these sums is $22,000,000 in one year. The tax, in years of dear food, thus thrown upon the city is enormous. It fortunately happens, that in years of dear food the food-sellers make more purchases. The influence of such times is very perceptible in the operations of the pawnbroker, whose business it is to lend small sums on the pledge of almost any conceivable article that may be offered. They charge 24 per cent. per annum, and the article, unredeemed at the end of a year, becomes forfeit by sale at auction. The amount of loans in one year was given at $3,000,000, and the number of pledges 4,875,000, which would give an average of about 68 cents each loan.

While cheap food is an important item in the ability to purchase, yet employment is the main consideration, and this depends upon the prosperity of those sources on which the city depends for its business. These in the long run are progressive, notwithstanding the reactions that sometimes take place, and the diffusion of employments which machine inventions tend to bring about.

The general prosperity of the whole country does not, however, depend upon any locality: all production and all business is constantly seeking the conditions under which it can best thrive. These cannot be dictated; but, being found, the general welfare is as a consequence the greater, and with the general prosperity the common centre must only become the more magnificent.

BANKS IN THE UNITED STATES.

CHAPTER I.

BILLS OF CREDIT—GOVERNMENT ISSUES—UNITED STATES BANK.

THE use of paper money is a modern invention, and may yet be considered but as an experiment, since, from its first emission in the colonies to the present day, paper money has constantly changed its form and the conditions of its circulation. It is not to be inferred that paper money originated on this continent, since it was used long before in the countries of Europe. Its nature has, however, been more developed here, and every phase of it has had full scope of action. The circulating paper is of many forms, such as bills of exchange, promissory notes, government bonds bearing interest, government bonds bearing no interest and not convertible into coin, but receivable for taxes and dues, and lastly, corporation or bank promises to pay coin on demand. There are many other descriptions of circulating paper, but these are the chief that are used. The last two are those which have figured most as money. The intention of paper money is to supply the place of coin where that article is not sufficiently abundant, as was eminently the case with the early colonies. The colonies were none of them rich, and had not been able to import and keep as much of the precious metals as would serve for a currency, that being as much an instrument of commerce as a road or a ship. In substituting paper for coin there is no difficulty as long as the quantity emitted does not exceed the demands of business for a currency. If there is no trade—that is, if no one wants to exchange his commodities for others—there is no want of currency. As the desire to trade increases, a want of money to represent commodities is experienced, and the want is proportioned to the numbers, wealth, and activity of the traders up to a certain point; because when trade is very active, money itself changes hands rapidly and performs more transfers than when it is sluggish. There must be, however, great confidence in the value of the money, because doubt in that respect instantly checks traffic. The early colonists were in that position. They had commodities which they had raised and made, but they had no currency, or not enough. In this position, in 1690, it became necessary for Massachusetts to send a military expedition to Quebec to drive the French out of Canada. The expedition failed, and the troops came back clamorous for pay. The colony had no money to pay with, and it adopted the expedient of issuing promises in convenient amounts. The faith of the colony was pledged for the payment of these, and they would be received for taxes and dues. It will be observed, that these bore no interest, and were not convertible into coin. They were, in fact, mere orders of the government upon farmers and others for food, clothing, etc., in favor of the soldiers, to be called in by taxes, not to be paid in money. The paper was worth nothing to export. Its only value consisted in its being good to pay taxes with. It is at once obvious that no man wanted more than would suffice for that purpose. The aggregate amount that could be issued was then measured by the sum of the taxes. In order to increase the amount, the colonial government made it a legal tender, that is, compelled creditors to take it for private debts. This was so palpably unjust, and was productive of so many evils, that the home government suppressed it. Nevertheless, the same necessities produced similar devices, and other colonies followed the example of Massachusetts with similar results.

In 1745, Massachusetts, to defray the expense of an expedition to Louisburg, again issued bills of credit to the extent of £3,000,000. This paper speedily depreciated to 11 for 1: that is, £1 in silver was worth £11 in those bills. The English government then sent out £180,000 in silver, to pay the cost of the expedition, and with this

the thrifty colony bought up its own paper at 11 for 1. New York, during the period 1709 to 1786, made thirty-four issues of bills of credit, amounting in the aggregate to £1,563,407, and the depreciation was about 2 to 1; in other colonies much more. The evils attending these issues were very great, but the cause continued to operate, and when the war broke out in 1775, the Congress of the Confederation was forced upon the issue of $3,000,000 worth of "continental money," as distinguished from the state issues; and to give these issues some firmness, they made them a legal tender. This supply of paper, in addition to the colonial emissions, increased the difficulties, and some of the colonies went a step further and made *personal property* a legal tender, according to appraisals to be made for the purpose. Notwithstanding the general discredit, Congress was obliged to push the issues. In 1779 the amount outstanding was $160,000,000, and, by 1780 it reached $200,000,000, when the value fell so fast that before the end of the year the bills ceased to circulate. There are those still living who remember giving $100 for "a cake of gingerbread," or $10,000 for a hat cocked in the fashion of the day. The whole amount issued by Congress was $359,456,000, and on the formation of the new government they were purchased at the rate of 1 cent for $1. The state issues met with similar fate. The entire absence of money thus brought about, with the attendant evils, mainly induced the adoption of the federal constitution, which at once prohibited the states from ever again issuing "bills of credit," or making "any thing but gold and silver a tender for the payment of debts." That is, those prohibitions are a record of the experience derived from the colonial experiments in paper money.

The condemnation of "bills of credit" was a great good. The important question was, however, what to do next; and this engaged all minds. Specie had vanished, and government paper money was dead. Mercantile sagacity had, however, on the death of the continental money, devised a partial remedy in 1781. This consisted of the substitution of private corporate credit in place of government credit, and took shape in the chartering of the Bank of North America, at Philadelphia; the Bank of New York, in the city of New York; and the Bank of Massachusetts, in Boston.

It is an erroneous idea, that was entertained for a long time, that banks, by the issues of credit, create capital, and on this idea many new banks were started, imparting much activity to trade. The good effects of their operation were due, however, rather to the concentration and application of capital to mercantile uses, than to an increase in the quantity of capital. Before the establishment of banks, individuals kept the money they received in their own houses, tempting robberies, and subjecting themselves to loss of interest, and to risk and trouble in seeking small investments. The shopkeeper and merchant who received money in the course of business in small sums, kept it by him until he made his wholesale purchases, when he paid it out altogether. The aggregate sum thus lying entirely idle was very large. On the establishment of a bank, the owners of money deposited it in the vaults. The institution thus became the common receptacle for all idle funds. Inasmuch as that, although all the depositors were entitled to draw their money whenever they chose, yet but a small proportion did so, the banks might safely lend the money so deposited on notes at short dates, sixty to ninety days, and still have as much within their control as would meet the probable demand of the depositors for payment. It was necessary, however, that the notes discounted should be promptly paid at maturity, in order that the bank, itself subject to be called upon to pay on demand, might have control of the means of payment. The discount of mercantile notes with two good endorsers then became the business of banks; and we may here remark in passing, that this wrought a change in the mode of borrowing money in the community. Up to that period, good character, industry, and sobriety were security for loans. An illustration of this is afforded in a bequest of Dr. Franklin in trust to the city (then town) of Boston, of a sum of money from which young mechanics of the above characteristics were to be loaned two hundred dollars to start them in business. They were to repay the money with interest, and the sum, with its accumulation, was to continue a fund for the same purpose. The fund still continues to exist, but without accumulation. Under the newly established banking system, character was no longer an element of credit. A note with two good names became indispensable. The capitals of the banks were seldom paid in loanable

money. They were notes of the subscriber, or real estate, and were mostly designed to inspire confidence. A portion of it was requisite to be kept on hand in specie to meet the calls of depositors and note-holders. The banks, in order to increase their loanable funds, were permitted to issue their own promises to pay specie on demand, these promises to circulate as money. The old colonial issues of credit bills did not pretend to be payable on demand, and the application of that principle, it was now supposed, would obviate the evils that had grown out of the old system. The bills were freely taken and circulated. The institutions were not limited in the amount that they might issue, and they increased the currency almost at pleasure. It became obvious, however, that if one bank issued a larger quantity in proportion than the other banks, its notes, paid into the rival institutions, would immediately be sent back to it for redemption, and it would have to pay in specie the balance above what it held of their notes. Hence the laws of trade compelled each bank to keep its credits within a safe ratio to those of other institutions. This, however, did not prevent all from increasing their issues to any extent as long as their mutual balances were adjusted. When, however, the whole of them increased their circulation, the mass of currency became cheap, a fact which manifests itself in a rise in prices of all commodities. The effect of this is, that the produce of the country ceases to be exported, because they are too high to pay a profit to the merchant, while, on the other hand, goods are imported to avail of the high prices. This state of affairs involves an export of specie, which drains the banks, and forces back upon them their bills for redemption. Hence, if the banks regulate each other by their balances, the foreign trade becomes the common regulator of all. Kept within a certain limit, governed by produce and business, the bank circulation is useful. Although it does not in any degree create capital, it supplies the place of the precious metals as currency. If we suppose a miller wishes to purchase grain; he gets a note or acceptance at sixty days, on New York, discounted at a local bank, which pays out to him circulating notes. With these he purchases wheat of the farmer, flours it, and forwards it to New York for sale, and the proceeds are applied to the taking up of his draft that the bank had discounted. In the mean time the farmer has paid away the notes he took for his wheat, probably to the storekeeper in discharge of his bill. The storekeeper has now to remit to New York to pay a note that falls due for merchandise previously purchased, and furnished to the farmer. To do so he goes to the bank, and buys of it the draft on New York that the institution had discounted for the miller. This he remits to his merchant, who gets it paid from the proceeds of the flour. The transaction is thus closed, and by it farm produce has been got to market, and merchandise, in return, has passed from the manufacturer to the consumer, effecting an exchange of commodities without the use of any money at all. The notes that the bank put out on a draft, after performing the functions of money, returned to it in exchange for the draft, and all obligations were cancelled. This is the operation of paper when confined to actual business transactions. The number and kinds of these are almost infinite, but the principle is the same when the paper is only issued on actual commodities, the exchange of which cancels the obligations that grow out of them. There is, in this, no creation of capital, only the facilitating the exchange of that already created. Under such circumstances, the quantity of currency rises and falls with the quantities of produce and merchandise. The moment the banks lend their notes to speculative operators, who seek to borrow capital itself, rather than credits with which to interchange capital, it becomes insolvent, because it lends what it has not got to spare. The early banks mostly confined themselves to sound rules, and with the rapid increase of business which followed the formation of the new government, their business being profitable, stimulated the increase of institutions, mostly in New England, where commerce was concentrated. The three original state banks were eminently successful, and they suggested a resource to the federal government. This was developed in the celebrated report of Alexander Hamilton, Secretary of the Treasury, in favor of a National Bank. The proposition at once called up the right of Congress to charter a bank under the constitution. After a warm congressional debate upon the subject, President Washington demanded written opinions of his four cabinet officers. The Attorney General and the Secretary of State declared the bank unconstitutional. The Secretary

of War and the Secretary of the Treasury were of a contrary opinion, and the celebrated paper of the latter upon the subject decided Washington, who signed the bill, and the bank went into operation with a capital of $10,000,000, of which $2,000,000 was subscribed by the government, and $8,000,000 by individuals. Of this latter amount, $2,000,000 was to be paid in specie and $6,000,000 in six per cent. stock of the United States. The charter was to continue until March 4, 1811. Immediately on the organization of the bank, the shares rose 25 to 45 per cent. premium, and the institution paid 8 1-2 per cent. dividend. The creation of this bank was attended by the rapid multiplication of banks in the various states, becoming rivals to each other, and gradually consolidating an interest which was strong enough in 1811, with other interests, to defeat the recharter of the Bank of the United States. The recharter was opposed on the grounds: 1st, that it was unconstitutional; 2d, that too much of its stock was owned by foreigners; 3d, that state banks were better. It is singular that at a time when capital was scarce in the country, objections should have been made to its coming in from abroad. Nevertheless, the bank was closed, and on settlement paid $108 1-2 to each share of $100. From that date, gold and silver only were by law receivable for government dues. The winding up of the National Bank was the signal for creating state banks to fill the vacuum. The old bank and its business was purchased by Stephen Girard, who conducted with it a large private banking business with great success on a capital of $1,000,000. In four years, to 1815, 120 banks, with an aggregate capital of $40,000,000, went into operation. Pennsylvania alone, by act of March 21, 1814, created 41 banks. The amount of notes emitted by these institutions was never known with certainty, but was estimated by Mr. Jefferson, in 1814, as high as $200,000,000. A large portion of these, in the middle states, were issued as loans to the government; and the war pressure became such, that in September, 1814, all the banks out of New England stopped payment. The bills immediately depreciated to 20 per cent. in Baltimore, and 15 per cent. in New York. The news of peace, in February 1815, caused some improvement, but in 1816 the difficulties were greater than ever. The discount in Baltimore was 20 per cent., Philadelphia 17, New York 12 1-2. This kind of paper being the only currency, the government was compelled to take it for dues, in violation of law. This caused the greatest injustice, since the funds received in one place were more depreciated than in another, and New England, where the currency was sound, had great cause of complaint. In such a state of affairs, although the state banks had multiplied to 246, with $89,822,422 capital, a new National Bank became inevitable, and Congress, by act of April, 1816, again chartered a National Bank, which went into operation January 1817. Its charter was to last until March 4, 1836; its capital was $35,000,000, of which the United States subscribed $7,000,000 in a 5 per cent. stock, and the remaining $28,000,000 was to be subscribed by individuals—one-fourth in gold and silver and three-fourths in the funded debt of the United States. The debts of the bank, in excess of its deposits, were not to exceed $35,000,000. The bank was to pay a bonus of $1,500,000, and perform the money business of the government free of charge. In return it received the public funds on deposit, and nothing was to be taken for public dues except specie, treasury notes, notes of specie paying banks, and the National Bank notes. When the bank went into operation it became necessary for the state banks to resume or wind up. Those of New York, Philadelphia, Baltimore, and Virginia resumed, and those who did not were gradually purged off. From 1811 to 1830, 165 banks, with a capital of $30,000,000, closed business. The loss of the government by these was estimated at $1,390,707, and the public lost much larger sums. The bank, in the first few years of its operation, encountered many perils, growing out of the foreign trade. Imports poured into the country in prodigious amounts, and an active demand for silver sprung up for Europe and Asia. The institution had, however, in the public stock and in its own stock, forming its capital, the means of drawing specie from Europe, which it did to an extent that subjected it to a loss of over half a million dollars.

The institution was of much service to the government, and enjoyed great facilities from the use of the public funds. The principal bank was at Philadelphia, with branches in most of the large cities. This organization of the bank made it very powerful as a means of exchange, and this power was likely to grow with the increasing wealth of the country, up to the time when railroads and

telegraphs made communication more rapid. The power of the bank was based upon the federal finances, of which it was the agent, and it operated through the growing business of the country, which was conducted largely upon the credit system. As the country increased in prosperity, other banks, under state charters, sprung up, and these became the recipients of mercantile deposits, or, in other words, of the money which each merchant received in the course of his business, and also of private funds. The merchants who thus placed their funds with the banks were constantly debtors of the government for duties and taxes; these they paid by checks on their respective banks. The United States Bank, being the common recipient of all these checks, was thus always the creditor of the local banks, and could always force them to contract their loans by compelling them to pay, or could permit them to increase their loans by being indulgent in regard to balances. The government funds thus collected by the United States Bank were paid out by it wherever the government required. Thus the Boston and New York branches would collect the largest amounts, but the branches in Richmond and elsewhere, or the parent bank in Philadelphia, would pay the drafts of the government. In the first year of the old bank it received $3,652,000 of the public money. As business prospered, the amount rose annually, until it reached $17,038,859 in 1808, before the embargo. Thus the receipts and payments on government account were thirty-four millions in a year, when the whole population was 5,200,000 souls. The new bank in 1817 received $32,786,662 for accounts of the government. The sum declined year by year to $21,347,000 in the year of crisis, 1825, and subsequently continued at about twenty-four millions per annum, until 1833, when the deposits were removed by the government. These large sums annually flowed in and flowed out of the bank on account of the government, and a large proportion of the payments were on account of the public debt. This reached $127,334,934 in 1816, and was by annual payments extinguished in 1835, a period of nineteen years; the average amount paid off annually by the government was thus $6,700,000. The government bank, being furnished with such machinery, was necessarily the best medium of collecting bills; thus the New York merchants, as an instance, sold their goods to the shopkeepers all over the Union, and they took notes payable at the local banks. The credits thus granted could be collected by the United States Bank cheaper than by any other bank. Hence, in New York, the "branch" would be the receptacle for accounts to be collected in all other cities; the bank would forward these to its appropriate branch, say Richmond; the branch there would notify the local merchants of the notes it held against them; these would pay in checks upon the local banks where they kept their deposits, and all these checks collected by the United States branch would make it the common creditor of all the local banks, whose specie it thus controlled; it would notify the New York branch of what collections had been made, and these would credit the mercantile owners with the amounts. The power of the bank from this source, operating through all its branches, was much greater than from the use of the government funds, and the state banks complained loudly of the tyranny that they alleged it exerted over them. A stormy opposition was thus formed against it, while, on the other hand, a generation of merchants had grown up under its administration of the exchanges, and they feared the results of a change. Nevertheless, the question became political, and a great party, as early as 1829, gave indication that the recharter in 1836 would not be granted. A struggle between the bank and the government ensued, and in 1833 the President removed the public deposits from the bank and placed them with numerous state banks. These ran a race of expansion with the United States Bank; the consequence was an immense speculation, which resulted in general bankruptcy in 1837. The government, on removing the deposits to the state banks, enjoined them to be liberal to the merchants. This was done in the view of counteracting the stringency which the closing up of the United States Bank was expected to cause. This did not occur, however, since that institution also was liberal with its loans. A rapid expansion resulted from this rivalry, and speculation ran wild, particularly in public lands. In the midst of this excitement, the government issued the famous "specie circular," by which the lands were to be sold for cash, gold and silver only. The effect of this would be either to kill the speculation or to drain all the specie into the land offices;

it did the former. This was followed by a resolution of the Bank of England to cut off credits to American merchants, and the revulsion was precipitated. The charter of the United States Bank was not renewed by Congress, but the same institution obtained a charter from the State of Pennsylvania, February 18, 1836, under the name of the United States Bank of Philadelphia. The terms of this charter were very onerous, such as no institution could pay from profits; the bank consequently failed, in common with all others in the Union, in 1837. It resumed its payments, following those of New York, January, 1839, and struggled on until October, 1839, when it finally failed. On going into liquidation, it was found that more than the whole of its large capital, $35,000,000, had been swallowed up, subjecting the stockholders to a total loss. This disaster was no doubt brought about by its abandonment of sound principles in the vain hope of compelling the government to recharter it. But the institution had outlived its usefulness; the country had outgrown the circumstances for which such a bank was fitted. We have thus sketched the outline of that bank before glancing at the progress of the state institutions, because, up to 1840, that bank was the controlling power. The progress of banking among the states has been step by step with the growing wealth, population, and commerce of the country. This growth was manifestly too vigorous to permit of the continued existence of any regulating power.

The relative growth of the state banks, and the business of the country proportional to the national bank, was as follows:—

	No.	State banks. Capital.	National bank. Capital.
1791,	3	2,000,000	10,000,000
1811,	89	52,601,601	10,000,000
1817,	246	89,822,422	35,000,000
1837,	634	290,772,091	35,000,000
1860,	1,562	421,880,095	

Thus the national bank, which began with a capital five times as large as all the state banks, was only one-fifth of their aggregate in 1811. In 1817 the state capital was two and a half times the new National Bank capital, and in 1836 it was eight times that capital. Had it then been rechartered, with the same amount, it would now have been but one-twelfth of the capital of the state banks.

CHAPTER II.

STATE BANKS—SUFFOLK SYSTEM—SAFETY FUNDS—FREE BANKS.

The growth of state banks has fluctuated from time to time, under different circumstances of local trade, and the general nature of banks has changed in obedience to similar conditions. The nature of the banking systems of each locality has, however, undergone repeated modifications, and the general tendency is to the circulation of less paper. We shall endeavor to give a sketch of each. The first attempt at banking in New England was the creation of a land bank in 1740. At that time about eight hundred persons subscribed a capital in real estate, and having appointed ten directors, agreed to issue one hundred and fifty thousand pounds in paper, to circulate as money. This was dissolved by Parliament, and the stockholders held individually liable for the bills. In 1784 a bank was chartered by the Massachusetts Legislature, and the other New England states followed the example from time to time. In 1805 there were in existence forty-seven banks in the six New England states, with an aggregate capital of $13,353,000. In 1815, at the close of the war, these had risen to sixty-three banks, and $19,053,902 of capital, and the circulation had become large. In 1860 the number of banks in those states had risen to five hundred and five, with a capital of $90,186,99. In the course of this increase, the system of banking there had undergone less changes than in other states.

The paper currency of New England was generally of small denominations, and emitted by a larger number of banks with small capitals than that of most other sections. These institutions were scattered over the six New England states, and the bills of each bank forming the currency of its neighborhood, would, in the course of trade, ultimately find their way to Boston, the common centre of business. There being no provision for their redemption, they circulated at a discount, and this discount was increased in proportion to the issues of each bank, inflicting loss upon the community. To remedy this, the Suffolk Bank of Boston, in 1825, undertook to receive all the bills and send them home by an agent to the issuing bank, requiring each to redeem in

specie at its own counter. This compelled each bank to keep a large amount of specie on hand, at an expense which ate up the profits of the circulation. They all agreed, in consequence, to keep at the Suffolk about three thousand dollars deposited, to redeem any balance of notes that might be there found against them. To keep down that balance each was then compelled to restrict its circulation to the actual business wants of its locality, that there might be no surplus currency; in other words, that the course of trade might carry to Boston no more of its bills than would be paid by the produce of the locality sent thither for sale, and also to send promptly to the Suffolk any bills of other banks that might come into its hands, as an offset to its own balances. Thus all the banks in New England are actively engaged in running each other, and five hundred streams pour country money daily into the Suffolk receptacle, to be assorted and sent back to the issuers. This keeps down the volume of the currency in that section. Since the creation of railroads and telegraphs, the difficulty of keeping out an excess of circulation is the greater. To be "thrown out of the Suffolk," or, in other words, not be able to meet a balance there, is fatal to the reputation of a bank. The system has worked well to the present day. It has been the case, however, that although those institutions cannot put out an excessive circulation in New England, many of them lend their notes on securities, on condition that the notes shall be paid out at the far west, whence they will be very slow in returning for redemption. The Suffolk mode of regulation by the laws of trade has, upon the whole, been very successful.

In New York the same evils manifested themselves as in New England, and in 1829 a remedy was attempted in the shape of the "safety fund." This did not undertake to restrain the issues of the banks, but to protect the public from loss by failure. Under it all the banks doing business in the state were required to contribute one-half of one per cent of their aggregate circulation to a fund to be called the "Safety Fund," out of which the notes of a broken bank were to be paid in full. This worked very well during a number of years of prosperity, but in the revulsion of 1837 a number of banks failed under disastrous circumstances, and the fund was found to be entirely insufficient—besides being wrong in principle, since it called upon the honest and well-conducted banks to pay the debts of the dishonest ones. It is hardly worth while, in a short history like this, to enumerate all the restrictions as to discounts, specie on hand, and emission of bills, that the various states have incorporated in bank laws. It may suffice to say, that all are powerless to prevent evil. On the failure of the safety fund system of New York, however, a radical change took place in the policy in regard to banks. The privilege of issuing notes to circulate as money at their own will and pleasure, had been found to be dangerous to the public, and the law of April, 1838, called the "free banking law," was passed, by which the power to issue bills directly was taken from the banks. Under that law, the Comptroller of the state prepares the plates, and delivers the bills to the banks, upon their lodging with him such securities, mostly state stocks, as amply secure the redemption of the bills. The name, "free banking," is given to the law, because it removes from the banks the restrictions relative to discounts, and the necessity for a charter. This law has been altered in some respects almost every year of its existence, but its main features remain the same, and it has in New York become the sole law to regulate banking. All the old banks, as their charters expire, reorganize under it, since the state constitution provides that no new charters can be granted or old ones renewed. The working of this law has been so efficient and popular, that it has spread into most of the northern and western states. The progress of banking in New York has been as follows:—

NUMBER OF BANKS AND AGGREGATE CAPITAL.

	No.	Capital.	
1801,	5	4,720,000	
1811,	8	7,522,760	Expiration of first U. S. bank.
1816,	27	18,766,756	Recharter U. S. bank.
1836,	86	31,281,461	Expiration of U. S. bank; suspension.
1838,	94	36,401,460	Free banking law; resumption.
1857,	294	107,449,143	Suspension.
1860,	303	111,441,370	Recovery.

The New York law requires the banks to issue the bills at the place of their location, and to redeem them at not more than one-half per cent. discount in the city of New York. These institutions, however, have an arrangement with the Metropolitan Bank, in New York, by which they are redeemed at a less rate.

Pennsylvania, in the early part of the century, was slow to create banks, and it had but three up to 1814, in which year 41 new

banks were incorporated. Subsequently, it created numbers, and has probably suffered more than any other state from its abused bank credits. The progress of affairs there was as follows, exclusive of the United States Bank, which was situated at Philadelphia:—

	No.	Capital.	
1801,	2	5,000,000	
1811,	4	6,153,000	Expiration of U. S. Bank.
1815,	42	15,068,000	Low credit; 41 new banks.
1820,	36	14,681,000	Twenty-two banks failed.
1836,	49	23,750,338	State charter of the U. S. Bank; supension.
1839,	49	25,255,783	Resumption.
1859,	87	24,565,805	

There was, up to 1830, a great number of unauthorized banks doing business in Pennsylvania, and they presented a constant succession of bankruptcies. The authorized capital down to the present time has not kept pace with that of other states, taking the wealth and population of Pennsylvania into consideration.

Maryland chartered its first bank in 1790, the Bank of Maryland, capital $300,000, and continued to increase them moderately up to the present time. The progress of capital there has been as follows:—

	No.	Capital.	
1801,	2	$1,600,000	
1811,	6	4,835,202	U. S. Bank expired.
1814,	17	7,882,000	Banks suspended.
1820,	14	6,708,180	
1837,	21	10,438,655	Suspension.
1859,	32	12,560,635	

New Jersey has been influenced to some extent in her banking operations, by the state of things in New York and Pennsylvania, and in 1850 it adopted the general banking law of New York. Its progress has been as follows:—

	No.	Capital.	
1805,	2	$1,000,000	
1811,	3	789,740	U. S. Bank expired.
1815,	11	2,121,933	Suspension.
1820,	14	2,130,949	
1837,	25	3,970,090	Suspension.
1850,	24	3,565,283	Free law.
1855,	32	5,314,885	
1857,	48	7,494,912	Suspension.
1859,	46	7,359,122	

The multiplication of banks in New Jersey, under the new law, was mostly for the benefit of circulating their issues in New York at a discount, and they were of but little service to New Jersey.

Delaware has created banks in proportion to its size, in the following ratio:—

	No.	Capital.	
1801,	1	$110,000	
1815,	5	966,000	Suspension.
1819,	6	974,000	
1837,	4	817,775	Suspension.
1849,	2	210,000	Gold discovery.
1859,	12	1,638,185	

Ohio has been, of all the states, the most diversified in its policy in regard to banks. Its first bank was chartered in 1803, but it did not increase charters much until migration set thither after the war of 1812, when the new United States Bank established two branches, one in Cincinnati and one in Chillicothe. The progress of banks was then rapid up to the explosion of 1837, when about 36 of the banks of that state failed, under disastrous circumstances, leaving but few in existence on the resumption of specie payments in 1840. In 1845, a new system of banking was introduced, designed to restore that confidence in banks which had been so rudely shaken by the previous failures. It was called the "safety fund system," being composed of some forty banks which, together, form the State Bank, under a board of control, composed of delegates from each bank, which furnishes the notes to all for circulation. Each bank must deposit with the board 10 per cent. of its circulation in securities. Of 42 banks started under this law, 36 remain, with capital of $4,034,525. The same law created the "independent system," by which the banks doing business under it must deposit Ohio or United States stock with the State Treasurer to secure the circulation. There are 12 of these banks. There remained the old chartered banks, of which the Ohio Life and Trust—whose disastrous explosion in 1857 precipitated the panic which had been prepared for the public mind—was the last. In 1851, the free banking law of New York was adopted in addition to the other systems, and under this 13 banks were started. In the same year, by the new constitution of the state, the legislature was deprived of the right to grant banking powers until the law for so doing should be approved by the people. The general progress in Ohio has been as follows:—

	No.	Capital.	
1805,	1	$200,000	
1811,	4	895,000	
1816,	21	2,061,927	New U. S. Bank.
1837,	32	10,870,089	Suspension.
1845,	8	2,171,807	State bank law.
1851,	56	7,129,227	Free law.
1854,	66	7,166,581	" "
1859,	53	6,701,151	Recovery.

Indiana became a state in 1816, and in 1819 there were two banks, with a capital of $202,857, and so continued until 1834, when the State Bank of Indiana was created, capital $1,600,000, and with ten branches, which were mutually liable for each other's debts, and notes under $5 were prohibited. The bank stopped, partially, in 1837, and resumed payment October, 1841. In 1852 the general banking law of New York was adopted, and under it ninety-four banks were speedily organized, and fifty-one of them soon failed. The charter of the State Bank of Indiana having expired, the legislature chartered a new one, with capital of $6,000,000, and twenty branches, which buys out the state interest in the old bank, the charter to be paid up January 1, 1857. The progress of the state has been as follows:—

	No.	Capital.	
1819,	2	$202,857	
1835,	10	800,000	State bank.
1837,	11	1,845,000	Suspension.
1839,	11	2,216,700	Resumption.
1841,	11		
1852,	44	5,554,552	Free banking law.
1854,	59	7,281,934	New state bank.
1859,	37	3,617,629	

There are of these 17 free banks, capital $1,236,070.

Illinois came into the union in 1818, and in 1819 there were two banks, capital $140,910—one of which had been chartered in 1813, under the territory. It stopped in 1815 and remained so until 1835, when the legislature revived it and increased its capital to $1,400,000. The constitution of the state in 1818 forbade the creation of any new banks except a state bank, which was chartered in 1819, with a capital of $4,000,000. This was repealed and a new bank chartered, which speedily failed. In 1835 a new bank was chartered, capital $1,500,000 to $2,500,000. These banks suspended in 1837, going into liquidation in 1842, and no banks existed in the state until the adoption of the free banking law in 1851. The general progress has been as follows:—

	No.	Capital.	
1819,	2	$140,910	
1835,	2	278,739	State bank charter.
1838,	2	5,473,050	Failure.
1843,			Liquidation.
1854,	29	2,513,790	Free banking law.
1857,	45	4,679,325	Suspension.
1859,	103	8,900,000	Recovery.

Michigan was admitted as a state in January, 1837, but there had been already a number of small banks authorized by the territorial legislature. These rapidly multiplied under the state, during the speculative year 1837. In the early part of that year there existed 20 banks, with a capital of $1,918,361. These were a total wreck, and in March, 1837, a general banking law was passed, in order, as was alleged, to throw the business open. In one year, 49 banks, with a capital of $3,915,000, were projected. Of these, 43 went into operation. Those banks were not required to redeem their issues on demand. The result was utter insolvency, inflicting a heavy loss upon the public. In 1849, the "free banking law" was adopted, with personal liabilities to stockholders. The progress was as follows:—

	No.	Capital.	
1835,	8	$658,980	Territorial gov'nment.
1837,	9	1,400,000	State and general law.
1838,	43	2,317,765	Revulsion.
1844,	3	202,650	Liquidation.
1849,	5	392,530	Free law.
1859,	4	755,461	

Iowa was admitted into the union in 1846. It had at Dubuque the Miners' Bank, chartered by Wisconsin before the erection of Iowa territory, in operation since 1838, but with little credit. In 1858, the free banking law was adopted, and also the State Bank of Iowa was authorized. The latter, with twelve branches, went into operation in 1859.

Wisconsin was admitted into the Union in 1848. It had, during some ten years, two banks, that of Mineral Point and the Bank of Wisconsin; these came to grief, and in 1851 a new bank was started at Milwaukee. In 1854 the free banking law was adopted; since that time the progress has been rapid, as follows:—

	No.	Capital.	
1837,	2	$119,625	
1839,	2	139,125	Suspension.
1848,			State admitted.
1854,	10	600,000	Free law.
1857,	38	2,635,000	Suspension.
1859,	98	7,995,000	Expansion.
1860,	108	7,620,000	Expansion.

The operation of the free law, by retarding the convertibility of the bills of the Wisconsin banks, causes, at a time when crops are short, the rate of exchange on the east to rule high, in other words depreciates the currency. The bank circulation is about $5,000,000.

Minnesota has made, as yet, little progress in banking. It adopted the free banking law in 1858, and two banks have been started under it; the Bank of the State, at

St. Paul, capital $25,000, and the Exchange Bank, at Glencoe, capital $25,000.

Nebraska has also two banks, the survivors of a number recently started, but they were swept down by the ruin of 1857; the capitals are $56,000.

	No.	Capital.
Jan. 1857,	4	$205,000
" 1858,	6	15,000
" 1859,	2	56,000

Kentucky was admitted into the Union in 1792, and in 1801 it authorized a bank, with a capital of $150,000, under the guise of an Insurance Company, authorized to issue notes. In 1804 it chartered the Bank of Kentucky, capital $1,000,000; this bank failed in 1814, but resumed in 1815. In 1817 a batch of forty banks, with $10,000,000 capital, was authorized to redeem their notes by paying out Kentucky bank-notes for them instead of specie. The result was a flood of irredeemable paper, which stimulated all kinds of speculation and jobbing, and ended in a general explosion and distress within the year. To "relieve" the people, the state chartered the Commonwealth Bank, capital $3,000,000, pledging lands south of the Tennessee river, in addition to the faith of the state, for the redemption of the bills, which creditors were required to take at par for their claims, or wait two years for their pay. The bills fell at once to fifty cents on the dollar, and which proportion of their debts creditors were thus required to lose. This gave rise to party strife, which, at the end of five years, resulted in the repeal of the law and the suppression of the paper. The United States Bank had two branches in the state, one at Lexington and one at Louisville. When, in 1833, it became evident that that institution would not be rechartered, three new banks, with branches, were authorized, capital $7,030,000; subsequently another was started. These went into operation, but suspended in 1837, resuming in 1839 with the United States Bank, and again suspended on the final failure of that concern. In 1842, the banks again resumed, and since then the number has gradually increased, as follows:

	No.	Capital.	
1819,	18	$4,307,431	Irredeemable.
1833,	2	792,427	New charter.
1835,	4	4,106,262	With ten branches.
1837,	4	8,499,094	Suspension.
1851,	26	7,536,927	
1857,	35	10,596,305	Suspension.
1859,	37	12,216,725	Recovery.
1860,	45	12,835 670	

Tennessee commenced banking in 1807, with the Bank of Nashville, which soon failed with great loss. In 1811 it again chartered ten banks, and a number of others were from time to time started, but failed disastrously. In 1852 the free banking law was adopted, and the progress of affairs has been as follows:—

	No.	Capital.	
1819,	3	$1,545,867	Disastrous failure.
1820,	1	737,817	State bank charter.
1835,	3	2,890,381	Four branches.
1837,	3	5,293,079	Suspension.
1852,	23	6,881,568	
1857,	45	9,083,693	Suspension.
1859,	39	8,361,357	

Arkansas had two banks that were started upon state bonds. These the state issued to the extent of $3,500,000 to the banks to form their capitals. The bonds were sold through the United States Bank, and the money obtained for them was loaned out pro rata to the stockholders, who became so by filing mortgages on their plantations and lands. Speedy ruin, of course, overtook both banks. These are now in liquidation, owing the state some $3,000,000 on the bonds, which are not paid. There have been no banks started since.

Mississippi is a state in which banking for a long time ran riot, but which has had but little in the last ten years. When the state came into the Union in 1817 it had one bank, which continued with an increased capital to 1830. In that year the state chartered the Planters' Bank, with a capital of $3,000,000, two-thirds to be subscribed by the state in stock, which was issued, and the bank went into operation. Other banks were then chartered, and in 1837 there were seventeen, with eighteen branches, and a capital of $16,760,951. In that year the Union Bank was chartered, with a capital of $15,000,000 in state stock; of this amount $5,000,000 was issued, and repudiated on the ground of illegality of sale, and in 1852 the people refused, by a large vote, to pay those bonds. All the banks of Mississippi failed, and there has since been but little movement, as follows:—

	No.	Capital.	
1820,	1	$900,000	
1830,	1	950,600	Capital increased.
1834,	1	2,666,805	
1837,	17	16,760,951	18 branches.
1838,	11	19,231,123	Suspension.
1840,	18	30,379,403	Failure.
1850,	0		Liquidation.
1851,	1	118,460	
1859,	2	1,110,000	

Missouri had one bank when it came into the Union in 1821, but it failed disastrously. The State Bank of Missouri and branches continued to be the only institution up to 1856, when a law was passed authorizing others, and the progress has been as follows:—

	No.	Branches.	Capital.	
1819,	1		$250,000	
1837,	1	1	533,350	State bank.
1839,	1	1	1,027,870	
1856,	1	5	2,215,405	
1857,	5	5	2,620,615	Suspension.
1859,	17	5	5,796,781	Expansion.
1860,	9	29	9,082,951	

Louisiana came into the Union in 1812, with one bank, having a capital of $500,000, This was increased to three banks in 1815; capital $1,432,000. The progress subsequently was not great until after 1830, when the speculative spirit of those years was largely developed in Louisiana, and the progress was as follows:—

	No.	Branches.	Capital.	
1830,	3		$4,665,980	
1837,	16	31	36,769,455	Suspension.
1840,	16	31	41,711,214	Failure.
1843,	6	22	20,929,340	Liquidation.
1851,	6	22	12,370,390	Free bank law.
1857,	6		22,800,830	Suspension.
1859,	12		24,215,689	

The free banking law was adopted in 1853, and four banks have been started under its provisions, which require the banks to keep one-third of their liabilities in specie on hand.

Alabama has had experience of a disastrous nature in state banking, and there has been little enterprise in that direction since the failure of the State Bank. When she came into the Union in 1819 she had one bank, with a capital of $321,112. In 1830 she had two banks. It was then supposed that by embarking in banking, the state might derive profits enough to pay all the state expenses and dispense with taxation. Accordingly, state bonds were issued to form the capital of the State Bank, which, however, soon failed, and the state was saddled with a debt of some $11,000,000. The progress was as follows:—

	No.	Capital.	
1819,	1	$321,112	
1830,	2	781,010	
1837,	3	10,141,806	Suspension.
1840,	3	14,379,255	Liquidation.
1843,	1	1,500,000	Bank of Mobile.
1851,	1	1,500,000	Free banking law.
1857,	4	2,297,800	Suspension.
1860,	8	4,901,000	

Virginia chartered a bank as early as 1804: for 53 years, the Bank of Virginia, capital $1,500,000, since enlarged. In 1830 there were four banks, and the change was not great down to 1851, when the free law was adopted, but the charters of the old banks are renewed as they expire. The course of events was as follows:—

	No.	Branches.	Capital.	
1819,	3		$5,112,192	
1830,	4	18	5,571,181	
1837,	5	18	6,732,500	Suspension.
1839,	5	20	7,458,248	
1840,	6		10,363,362	
1851,	6	20	9,731,370	Free banking law.
1857,	22	40	14,651,600	Suspension.
1860,	24	41	16,005,156	

North Carolina began her bank career in 1804, in granting a charter for $250,000 capital. From that time the number and amount of capital has been steadily increased, without any material deviations from a steady course, which has been as follows:—

	No.	Branches.	Capital.	
1819,	3		$2,964,887	
1830,	3		3,195,000	
1837,	3	7	2,880,590	Suspension.
1850,	3	12	3,789,250	
1859,	12	16	6,525,200	

South Carolina has been more variable in its banking movement. Its first institution was the State Bank, owned by the state, and had more the character of a loan office than a bank. In 1820 the capital of the bank was pledged as security for the state debt, and it became a regular bank. The progress of the state has been as follows:—

	No.	Capital.	
1792,	1	$675,000	
1811,	4	3,475,000	
1820,	3	2,475,000	
1836,	10	8,636,118	
1837,	4	4,100,000	Suspension.
1839,	11	9,153,498	Eight new charters.
1850,	14	13,179,131	
1859,	20	14.888,451	

Georgia has had a regular supply of banks since the expiration of the first United States Bank in 1811, when she chartered an institution with $215,000 capital. In 1820 this had increased to four banks, with a capital of $3,401,510, and the progress has been as follows:—

	No.	Capital.	
1811,	1	$215,000	Old U. S. Bank expired.
1816	3	1,502,000	New " chartered.
1820,	4	3,401,510	
1833,	13	6,534,691	Deposits removed.
1837,	16	11,438,828	Suspension.
1840,	39	15,098,694	
1846,	22	8,970,789	
1857,	30	16,015,256	Suspension.
1860,	29	16,689,560	

District of Columbia banks were established as early as 1792, in the district, and increased pretty rapidly, as follows:—

	No.	Capital.
1792,	1	$500,000
1802,	2	1,500,000
1811,	4	2,341,395
1815,	10	4,078,295
1820,	13	5,525,319
1830,	9	3,879,574
1837,	7	2,204,445
1844,	6	1,649,280

Most of the charters expired, and not being renewed, the concerns are in process of liquidation.

Florida came into the union in 1845, with a load of five banks that had been chartered by the territory in 1838, with an aggregate capital of $2,113,000. These were mostly based upon $3,500,000 territorial bonds, issued to the banks for capital, and sold in London. The concerns failed almost as soon as they got the money, and went into liquidation, when the state repudiated the bonds, and there have since been no banks in Florida, until this year two are started, with $300,000 capital.

From this sketch of banking in each state, it is to be observed that the creation of banks has been due more to the desire to borrow money through their operation than to lend it. The mistaken idea that they could supply capital, has been the temptation to their creation, and disastrous failure has everywhere attended the experiment. Gradually a principle of sound banking vindicates itself amid numerous disasters, and actual capital has come to be employed in the business.

CHAPTER III.

BANKS OF THE UNITED STATES—CLEARING HOUSES—PRIVATE BANKING.

HAVING sketched the course of events in each state, we may recapitulate the leading features of all the state banks:—

BANKS OF ALL THE UNITED STATES—TOTAL OF IMPORTS AND EXPORTS—POPULATION.

	No.	Capital.	Loans.	Circulation.	Specie.	Deposits.	Imports & exports.	Population.
1791,	3	$2,000,000	..	..	..	..	$48,217,041	3,929,827
1800,	32	23,550,000	..	..	..	..	162,224,548	5,305,925
1811,	89	52,601,601	..	$28,100,000	$15,400,000	..	114,716,833	7,449,960
1815,	208	82,259,590	..	45,500,000	17,000,000	..	165,599,027	8,353,338
1816,	246	89,822.422	..	68,000,000	19,000,000	..	229,023,452	8,595,806
1820,	308	137,110,611	..	44,863,344	19,820,240	$35,950,470	144,141,669	9.638,131
1830,	330	145,192,268	200,451,214	61,323,898	22,114,917	55,559,928	144,726,428	12,866,020
1837,	634	290,772,091	525,115,702	149,185,890	37,915,340	127,397,185	258,408,593	15,681,467
1840,	901	358,442,692	462,896,523	106,968,572	33,105.155	75,686,857	239,227,465	17,069,453
1843,	691	228.861,948	254,544,937	58,563,608	33,515,806	56,168,628	149,090,279	18,713,479
1846,	707	196,894,309	312,114,404	105,552,427	42,012,095	96,913,070	235,170,313	20,515,871
1854,	1,208	301,376,071	557,397,779	204,689,207	59,410,253	188,188,744	582,803,445	26,051,890
1857,	1,416	370,834,686	684,456 889	214,778,822	58,349,838	230,351,352	773,850,823	28,406,974
1860,	1,562	421,880,095	691,945,580	207,102,477	83,594,537	253,802,129	803,000,000	30,986,851

This table shows the number of banks, with their aggregate capital, at important eras. As in 1791, when the national bank and mint went into operation; 1811, when the bank charter expired; 1815, when the numerous banks that had sprung into being on the dissolution of the National Bank, were all suspended; in 1816, when the peace, bringing with it large imports of goods, and a heavy drain of specie to Europe and Asia, increased the confusion and aided the re-establishment of a national bank; 1820, when that bank, in full operation, was staggering under adverse exchanges and the operation of local banks; 1830, when five years of successful working, after the revulsion of 1825, and under a high tariff, had given confidence to the public; 1837, when the rivalry between the state and the national banks had, aided by the state of affairs in Europe, stimulated speculation, which resulted in the revulsion of that year; 1840, when the number of banks had reached the highest point, under efforts to restore prosperity by paper credits; 1843, the lowest point of depression after the failure of those efforts, and the liquidation of the unsound banks; 1846, when the bank capital was at a low point, but bank credits had begun to multiply under the effects of the famine abroad; 1854, when the activity growing out of the gold discoveries was in full blast, and five hundred new banks were, through the medium of credit, urging the public toward the panic of 1857. In the last two years there has been a renewed movement.

The mere figures, showing the magnitude of the bank movement, do not indicate the

changes in the manner of doing business, nor do they indicate any unsafe expansion, except as in connection with the business they represent. Thus, in 1837, the bank loans were $525,000,000, and their circulation $149,000,000. Events proved that those loans were of the most speculative and unsafe character. In 1860, the loans were $691,900,000, and the circulation $207,000,000. Yet these larger figures were very far from being excessive. They represent but $6 circulation per head of the people, while that of 1837 was nearly $10 per head. The business of the country, as represented by imports and exports, was, in 1837, but half the amount of bank loans. In 1860 they exceeded the amount of bank loans. It is thus evident, that the larger sum of bank loans represents actual business, while those of 1837 represented only speculative values. This fact of the nature of loans made is the key to sound banking. It is a matter which depends upon the judgment and skill of the banker, and it cannot be regulated by law. Hence the futility of all the laws that have been devised to prevent banks from breaking. It is to be remembered, that the bank loans form but a portion of the credits which are the great purchasing power in trade. Almost all the wholesale business of the country is done with the notes of individuals, running for a longer or less time. These are entirely independent of law or banks. In a time of great mercantile confidence and speculative activity, business men are disposed to buy on credit, and their competition for produce and merchandise causes a rise in prices. This rise stimulates greater activity, which reacts upon prices until revulsion is brought about. The agency which the banks have in this matter is to discount a portion of the notes which a dealer takes in exchange for the merchandise he sells. The bank in discounting does not actually lend any money. It merely operates a canceling of credits by book accounts. Thus, a merchant buys goods and gives his note at six months. He then deposits what money he receives in the course of business to await the maturity of the note. As the period approaches, he finds that he has not money enough, but he has in his pocket-book a number of notes that he has taken for goods. These he takes to the bank and offers as collateral security for his own note, that he offers for discount. The bank making the discount places the amount to his credit. He draws a check against that credit in favor of the note he has to pay, and the two entries cancel each other. There has been no money used, but one kind of promise has supplanted another. As the crops come forward from the country, the drafts drawn against them pay the notes held by the merchant and lodged as collateral. Dearness or scarcity of money in the market depends mainly upon the disposition of the banks to facilitate the canceling of credits, and in this the institution affects to be governed by the state of the foreign trade. If the disposition to buy goods has been very active and prices are consequently so high as to pay good profits on imports, the arrivals of merchandise will be large and the exports proportionably small. This involves a demand for specie which the banks avoid, by refusing to come under new obligations. A competition in curtailment sets in. The bank that curtails the most rapidly will have the balances in its favor from the other banks, and will command their specie. Each endeavors to attain such a position. The pressure becomes great, the public alarmed, and individual depositors draw their specie, which exhausts the banks, and they stop. This was the state of affairs in 1857.

The general tendency of the banks has been, under the teachings of experience, to equalize balances and to insist on prompt payment. In the case of circulation this is done in New England by the Suffolk system, and in New York and most other states by the free law, which requires a deposit of state stocks of dollar for dollar of the circulation. It is obvious, however, that these regulations in no degree affect discounts and those operations where circulation is not in question; as in the checks of individuals, by which a large portion of credits are transferred. In New York city there are some fifty banks, each of which receives checks on all the other banks, and has checks drawn upon it in favor of all others. There are also drafts and bills from abroad, constantly coming to each to be paid by others. Up to 1853, all the banks employed each a man to go round and collect all these checks and drafts each day, and each bank kept fifty accounts open. To obviate this and to enforce settlement, the "clearing house" was devised. By this system, each bank sends thither every day a clerk, with all the demands it has against all other banks. The fifty-four clerks thus assembled make a mutual exchange of all claims, and the balance, if any, is struck, and

each bank pays in cash the amount of that balance. This occupies an hour, within which all accounts are adjusted. The amount of accounts to be thus adjusted, depends upon the activity of business. The clearing house has been in operation since October, 1853, and its operations have been as follows:—

	Amount exchanged.	Balances paid.
1854,	5,750,455,987	297,411,493
1855,	5,362,912,098	289,694,137
1856,	6,906,213,328	334,714,489
1857,	8,333,226,718	365,313,901
1858,	4,756,664,386	314,238,910
1859,	6,448,005,956	363,984,682
1860,	7,180,000,000	351,000,000

Thus, in the active year 1857, the amount of exchanges was double what it was in the next year of depression. The balances paid in 1857 were less in proportion than in 1858. They were hardly more than 4 per cent., while in 1858 they were 8 per cent., and in 1859 9 per cent. The average bank loans in 1859 were $125,000,000. The exchanges were, therefore, nearly sixty times the amount of loans. This clearing system has worked admirably, and the example has been followed by the banks of Philadelphia and Boston. The principle of compelling the banks to continue specie payments as the price of existence, is the only efficacious legal prescription. If the rule is inexorable, the banks will, themselves, shape their course so as to be safe.

The growth of private capital engaged in banking business has been very considerable within the last few years. The report of the Secretary of the Treasury for 1854, gave the amount so employed at $120,000,000. There are many advantages in the employment of private capital over corporate in the business of banking, and as competition increases, lessening the profits and making security more indispensable, private capital gains in favor. The private banker attends to his own business. He knows most of his customers and their wants. He can reply promptly to demands for discount, and turn such paper as his customers present more promptly than can corporate officers, who are guided by meetings of discount boards once or twice a week. The expenses of the private banker are much less, and his business more concentrated, whereby he is enabled to avoid absolute loans of capital where advances only are sought. The course of events is, therefore, to bring the banking business more into the hands of those who have really capital to advance upon real business transactions, and to diminish the number of corporations projected by borrowers who seek to benefit by deposits made by the public.

UNITED STATES MINT.

CHAPTER I.

ESTABLISHMENT OF MINT—STANDARD OF COINS—LAWS REGULATING COINAGE—PROGRESS OF COINAGE—PRECIOUS METALS IN THE COUNTRY.

THE currency, or circulating medium of a country, is of itself a very simple matter; although complicated at times by the theories of financiers, and the efforts to make promises of a thing pass for the thing itself. In the early stages of society the products of industry constitute the wealth of the people, after they have ceased to be merely herdsmen. These products being exchanged against each other, the transactions form barter trade. As wealth increases and wants become more diversified, as well as the products of industry, by being subdivided, some common medium of value becomes requisite to meet all the wants of interchange. The precious metals have generally been adopted as this medium, because the supply is the most steady, the equivalent value most generally known, and the transportation most convenient. Hence all trade comes to be represented by a weight of pure gold or its equivalent of pure silver, and all commodities come to be valued, or called equivalent, to certain quantities of these metals. To ascertain the purity and weight of the metal offered in payment at each transaction would, however, involve difficulties that would neutralize the value of the metals as a common medium of exchange. Every man would require to be an assayer, and to be provided with scales. To obviate this the government steps in, and by means of a mint assays the metals, and weighs them into convenient pieces, placing on each a stamp, which soon becomes universally known, and this is called "money." Every nation makes the pieces of different weights, and puts in more or less pure metal. To ascertain the "*par* of exchange" between two countries, the coin of each is assayed, and the quantity of pure metal in each being ascertained, the *par* of exchange is known. When this continent was discovered, its inhabitants were savages, who had no idea of property, and no trade beyond the mere exchange of, perhaps, a skin for a bow or a bunch of arrows. Money was unknown, and the value of the precious metals was not understood. The little gold and copper that they had was twisted into rude ornaments; but no man would work for a piece of these metals. In 1607 the first emigrants landed, commencing the cultivation of the earth and the interchange of its products. The accumulation of industrial products formed wealth. Their first exchanges were mere barter. As late as 1652 the payment of taxes and other dues was made in cattle, skins, and other products in Massachusetts; and tobacco was a medium of trade in Virginia. Some money existed, but this was mostly the coins brought by the immigrants from the mother country, and did not suffice, for the daily wants. Massachusetts, therefore, established a mint for the coinage of shillings, sixpences, and threepences of sterling silver, which were "two pence in the shilling of less valew than the English coyne." The value of this shilling was sixteen and two-thirds cents, and it bears on the reverse a pine tree. This coinage gave umbrage to the mother country, and when Governor Winslow was introduced to Charles II., that usually good-natured monarch took him roughly to task for the presumption of the colony in assuming to coin money, at the same time producing the coin with the pine tree upon it. The ready wit of the governor, however, turned the rebuke, by assuring his Majesty that it was an evidence of the devotion of the colony, which struck these medals in commemoration of the escape of his Majesty in the Royal Oak, which was executed as well as the poor state of the arts in the colony would permit. The

coinage was nevertheless suppressed, and the example of Massachusets was followed by Maryland with the like results. Carolina and Virginia struck some copper coins, but without much effect. There being no mint, therefore, in any of the colonies, foreign coins were circulated freely as a legal tender. The country produced none of the precious metals, but as the trade of the colonies increased, and they began to have a surplus of fish, provisions, food, tobacco, etc., beyond their own wants, to sell, they built vessels, and carried these articles, mostly fish, to the West Indies and the catholic countries of Europe; and as the mother country did not allow the colonies to buy manufactures except from herself, money was mostly had in exchange for this produce. Guineas, joes, half joes, doubloons, and pistoles of various origin constituted the gold currency, while the silver was mostly the Spanish American dollar and its fractions: the half, quarter, eighth, and sixteenth, with the pistareen and half pistareen. This silver coin flowed into the colonies from the Spanish West Indies, in exchange for fish and food; and the Spanish dollar thus came to be the best known and most generally adopted unit of money. The coin had upon its reverse the pillars of Hercules, and was known as the pillar dollar; hence the dollar mark ($), which represents "S," for "Spanish," entwining the pillars. Inasmuch as the "balance of trade" was in favor of England, the largest portion of the coin that flowed in from other quarters was sent thither, and this tendency was increased by the pernicious issues of paper money by the colonies. This paper displaced the coin, and drove it all out of the country. The exigencies of the several colonial governments caused them to make excessive issues of this "paper" or "bills of credit," and it fell to a heavy discount as compared with coin. Not being convertible at the date of the Revolution the depreciation in the several colonies was nearly as follows:—

VALUE OF THE DOLLAR AND THE £ STERLING IN COLONIAL PAPER MONEY.

	£ sterling.			Dollar.	
	£.	s.	d.	s.	d.
New England and Virginia ...	1	6	8	6	0
New York and North-eastern ..	1	15	6½	8	0
Middle states.....	1	13	4	7	6
South Carolina and Georgia...	1	0	8¼	4	8

On the formation of the new government, the terrible state of the currency first attracted attention. The country had been flooded with "continental money," which had been issued to the extent of three hundred and sixty millions for war expenses. The states had issued "bills of credit," which were depreciated as in the table; and the debased and diversified foreign coins that circulated were very few in number. Private credit hardly existed. Frightful jobbing took place in the government paper, and industry could with difficulty get its proper reward. The first effort was to give the federal government alone the right to coin money, to prohibit the states from issuing any more "bills of credit," and to get the continental money out of circulation by providing for its payment. Robert Morris had been directed to report upon the mint and a system of coinage, and he did so early in 1782. Many plans were based upon his report, and finally that of Mr. Jefferson was adopted. It conformed to the decimal notation, with the Spanish dollar as the unit: A gold piece of ten dollars, to be called the eagle, with its half and quarter; a dollar in silver; a tenth of a dollar in silver; a hundredth of a dollar in copper.

In accordance with the plan of Mr. Jefferson, a law of April 2, 1792, enacted regulations for a mint, located at Philadelphia, and the coinage proceeded. It was found that, owing to the rise in the value of copper, the cent had been made too heavy, and, January 14, 1790, it was reduced to two hundred and eight grains, and January 26, 1796, it was again reduced to one hundred and sixty-eight grains, at which rate it remained until the late abrogation of the coin. The mint being established at Philadelphia, the work of coinage went on slowly, for two principal reasons. The first was that the material for coin—that is, gold and silver, no matter in what shape it may be—was obtained only, by the operation of trade, from abroad, and nearly all of it arrived at New York, the property of merchants. Now, although the government charged nothing for coining, yet, to send the metal from New York to Philadelphia during the first forty years of the government, when there was none but wagon conveyance, was expensive, and accompanied with some risk. It was not, therefore, to be expected that the merchants would undertake this without any benefit; the more so, as the same law, in the second place, still allowed the foreign coins to be legal tender. The merchant who received,

say ten thousand dollars in gold coin at New York had only to lodge that coin in the local bank, and use the paper money issued by the bank. There was no necessity to send the coin to Philadelphia merely to be recoined without profit. It was also the case that in the course of the newly developed commerce between the United States and the countries of Europe, it was found that silver had been valued too high at the mint. It was coined in the ratio of fifteen to one of gold, when its real value was nearer sixteen to one. This relative value of the two metals depends upon the respective demand and supply in the markets of the world. At about the date of the discovery of America it was ten to one; that is, ten ounces of pure silver were equal to one ounce of pure gold. When Peru and Spanish America poured in their large supplies of silver, the rate gradually fell to fifteen to one. At the close of the eighteenth century, and with the greater freedom of commerce in the first half of the nineteenth century, it was found still to decline. The reason of this is obvious, since, in any locality, the relative value of the metals will be proportioned to the local supply of either, influenced by the expense of sending either to other localities. Thus, silver may have been really fourteen to one in one place, and sixteen to one in another, and the difficulties of transportation prevented an equalization. As soon as communication became prompt and cheap the equalization took place, and the general relative value was found to be somewhat changed. The effect of this was that silver came here and gold went away. Nearly all the coinage of the mint was silver. This evil attracted the attention of the government, and a remedy was sought. This was finally found in changing the relative value of the silver to gold in the coinage by simply putting less pure gold into the eagle, and letting the silver remain as it was. The quantity of pure gold in the eagle was, therefore, by the law of June 28, 1834, reduced from 247.5 grains to 232 grains, or rather more than six and five-eighths per cent, and the quantity of alloy was slightly increased, so as to make the fineness of the gold nine-tenths, or nine grains of fine gold to one of alloy in each piece.

This was found not to be exact, and in 1837 the pure gold was slightly increased, and this regulation remains. Under all the laws the gold coins have been as follows:—

	Pure gold. Grains.	Alloy. Silver.	Alloy. Copper.	Total Alloy.	Total weight. Grains.	Fineness.
1792,	247.5	5.62½	16.87½	22.5	270	916.7
1834,	232.0	6.50	19.50	26.0	258	899.2
1837,	232.2	6.45	19.35	25.8	258	900.0

These proportions remain now the same for gold. In order to bring the silver to the same standard, the law of 1837 reduced the alloy in dollars three and a half grains, making the dollar weigh 412 1-2 grains instead of 416.

In all this period, up to 1838, there had been but one mint, and that at Philadelphia. In 1831, under the desire of the government to enlarge the metallic basis of the national currency, three branches were authorized, one at New Orleans, one at Charlotte, North Carolina, and one at Dahlonega, Georgia. These two latter were in mining districts, where gold began to be produced to some extent, and all three went into operation in 1838. The coinage progressed down to 1853, when, in consequence of the change brought about by the gold discoveries in California, a new law in relation to the silver currency was enacted. Before giving an account of that change, we may take a table of the coinage at the mint since its organization for several periods.

UNITED STATES COINAGE.

	Gold.	Silver.	Copper and Nickel.	Total.
1793 to 1820,	7,431,545	10,980,481	421,795	18,833,771
1821 " 1834,	4,894,345	25,314,647	236,795	29,945,787
Total to 1834,	11,825,890	36,295,078	658,590	48,779,558
1834 to 1837,	11,424,450	12,560,115	137,323	24,121,888
1838 " 1848,	53,329,965	24,351,769	513,376	78,195,570
1849 " 1852,	60,211,315	6,014,509	341,207	166,567,031
1853 " 1860,	328,169,102	42,803,767	553,365	371,526,234
	$564,960,722	122,025,238	2,203,821	689,190,281

In the first twenty-seven years of the mint operation, the gold coinage was about seventy-five per cent. of the silver coinage. That whole period embraced the European war, and the first operations of the mint were to coin as much of the metals already in the country as came within their reach. In the second period, from 1821 to 1834, the effect of the change in the relative value of the metals of which we have spoken, became manifest, and the gold coinage was about one-sixth only of the silver coinage. In 1834 the new gold bill produced a change, and the gold coinage became nearly equal to that of silver. Soon after the passage of this law, the payment of the French indem-

nity, enforced under the administration of General Jackson, took place, and it was paid in the form of gold bars, of weight varying from twenty-five to six hundred and fifty ounces each. The first of them were received at the United States mint September, 1834, and from that date to September, 1838, six hundred of these bars were deposited at the mint; the value was $3,500,000. In 1838 the branches came into operation, and the coinage was increased by their operations and by 13,705,250 of gold of domestic production, to the close of 1848. In 1849 California gold began to make its appearance, and $7,079,144 worth of it was coined in that year. The great influx of gold bullion upon the mint by far exceeded its capacity to do the work, and Congress authorized, by the act of March 3d, 1849, the coinage of double eagles, or $20 pieces, and also one dollar pieces to supply the place of the silver coin, which had been drained off to California in exchange for the gold, which sold as low as $15 and $16 per ounce, although worth $20 and $21. The law of May, 1852, authorized the coinage of $3 pieces.

In ten years, to the close of 1848, the gold coinage had amounted to double the silver coinage, and the new influx of gold excited fears that the value of silver would rise rapidly as compared with gold. From 1848 to 1857 the coinage of silver was very small, while the demand for it was large. To avoid inconvenience from this cause, a new bill was passed, to take effect April 1st, 1853. By this bill it was enacted that gold or silver deposited with the mint, might be cast into bars or ingots of pure metal, or standard fineness, at the option of the depositor, with a stamp designating the weight and fineness; no pieces less than ten ounces shall be other than of standard fineness; the charge for this is one-half per cent. Inasmuch as most of the gold arrives at New York, efforts were made to procure the establishment of a mint at that point. Instead, however, of a mint, an assay office was established there, and a branch mint at San Francisco, in 1854. The law allows the depositor to draw either bars or coin in return, the description desired to be stated at the time of the deposit. The production of bars and coins under all these regulations has been large, for gold as well as silver.

Until the law of 1834, the quantity of gold coin in circulation was not large. The banks supplied so large a quantity of small bills as to fill the channels of circulation for sums above a dollar, and under that amount the circulation was almost altogether small Spanish coins, which, being much depreciated by wear and tear, passed for more than their intrinsic value, and consequently flooded the country, greatly influencing retail prices. This was particularly the case with the pistareens, which, up to 1827, were taken at twenty cents, or five to the dollar, although they were really worth but eighteen and a half cents, consequently there was little other change to be had. In consequence of a report of the Mint Director of that year, they were refused at more than seventeen cents, and they very speedily disappeared from circulation, and have not now been seen for a quarter of a century. The quarters continued to circulate at twenty-five cents, although the average value was twenty-three and a half cents; the eighths were taken at twelve and a half, although they were worth only eleven and one-eighth; the sixteenth was taken at six and a quarter, although worth but five cents. It resulted that these coins became very abundant, driving out the dimes and half dimes, and in 1843 the post-office and the banks refusing them altogether, they were supplanted by the American coin, until the gold discoveries of 1848. After that event, owing to the increased production of gold, and the fact that some of the European states changed their monetary policy, making silver the sole standard of value, the latter metal became worth more in market than its nominal value in United States coin, and was gradually withdrawn from the currency, until, in 1852, silver coin became very scarce, and there was not sufficient left in circulation for the purposes of change. A premium of four per cent. was paid for dollars and half dollars for export, and the smaller coins commanded, in many cases, a still higher price, for use among shop-keepers and small traders. It was easy to see that, unless the weight of our silver coin was reduced, there would soon be none left in the country. Already the eating-houses and drinking saloons had issued their tickets, or shinplaster tokens, in place of coin; and the poor, who purchased the necessaries of life in small amounts, were put to great inconvenience, or obliged to submit to ruinous shaves upon their paper money. To remedy these evils, Congress passed the act of February 21st, 1853, (to

take effect the 1st of April following), authorizing the coinage of half dollars, quarter dollars, dimes, and half dimes, weighing about seven per cent. less than the old coin. The change will be better understood by comparing the weight of the several pieces under the old law, with the weight of the new coin:—

	Old coin.	New coin.
Half dollar, grains	206½	192
Quarter dollar, do.	103¾	96
Dime, do.	41¼	38 2-5
Half dime, do.	20¾	19 1-5

The dollar was not changed, and the weight of that piece is 412 1-2 grains, the weight which it has borne since 1836; this reduction of weight being fourteen and a half grains in the half dollar, or nearly seven per cent. The silver currency was not *debased*, in the ordinary sense of the word, the same fineness (nine hundred parts pure silver, and one hundred of alloy) being retained, and the only change in the coin itself being in the weight. A very important provision, however, was made in regard to it; it is not a legal tender in payment of debts in sums exceeding five dollars. The old silver coins have been mostly taken out of circulation. A few dollars are kept to pay depositors at the mint, who are entitled to silver coin, but the silver extracted from California gold is paid for in gold coin at a premium to the depositor. To prevent the government from forcing this silver currency upon the people, the right to make payments in it was restricted as above noticed; but to go further, and to prevent the mints from coining more than was needed, the purchase and coinage of the silver was placed under the control of the Secretary of the United States Treasury. The law went into operation at the date fixed, and the supply of coin was very acceptable to the people.

The continued active operation of the mint is, however, producing an excess of these coins. The quantity of silver coined at the mint and branches, under the law of 1853, has been as follows:—

	Philadelphia. Pieces.	New Orleans. Pieces.	S. Francisco. Pieces.	Total pieces.	Value.
Dollars	335,250	200,000	15,000	550,250	$ 550,250
Half dollars	15,038,208	22,440,000	1,099,950	38,578,158	19,289,079
Quarter do.	55,685,220	5,940,000	961,400	62,586,620	13,146,655
Dimes	31,838,010	6,030,000	120,000	37,988,010	3,798,801
Half dimes	36,495,020	9,226,000		45,721,020	2,286,051
3-cent pieces	16,314,000	720,000		17,034,000	511,020
				202,458,058	$39,581,856

This is a curious table, inasmuch as that it indicates the large amount of silver money in the hands of the people. This coin, it will be borne in mind, is undervalued six per cent., and is a legal tender only to the extent of five dollars. These two conditions prevent its export, and also its retention by the banks. It appears, then, assuming the number of people to be thirty millions, that there are nearly seven pieces of silver coin for every soul, and in value, a dollar and thirty-three cents each person. There are more than two quarter dollars for each person; nearly three half dimes for every two persons. In addition to this small silver coin, there has been coined since 1849, $17,046,053 in one dollar gold pieces. These have not been a popular coin, however, and do not remain in circulation. The remaining coins are of a large amount, but the quantity that remains in circulation cannot be ascertained.

The main source of supply of the precious metals to the mint was, until the discovery of California gold, from abroad, through the operations of commerce. Since that event, the Pacific state has been the leading source. The Atlantic states had, however, previously supplied important sums. The quantity of domestic gold deposited at the mint, up to 1851 and since, has been as follows:—

DEPOSITS OF DOMESTIC GOLD AT MINT AND BRANCHES.

	To 1851.	1851 to 1859.	Total 1859.
Virginia	1,197,338	327,977	1,525,315
North Carolina	6,707,458	2,236,951	8,944,409
South Carolina	817,692	462,913	1,280,605
Georgia	6,018,603	782,270	6,800,879
Tennessee	76,574	4,337	80,911
Alabama	186,627	10,131	196,758
New Mexico	38,963	9,709	48,672
California	31,838,079	419,472,761	451,310,840
Kansas		4 172	4,172
Oregon		69,272	69,272
Other places	41,108	33,121	79,224
Total	$46,922,948	$423,418,361	$470,341,457

This large amount, $423,418,521, of raw material of money, was supplied to the mint in the past nine years, but after supplying the money required for circulation, it flowed off to Europe as an export, in the shape of bars. The domestic silver which has been supplied to the mint, has been $23,398 received from North Carolina, for the first

time, in 1859; $45,745 from Lake Superior, and $3,221,225 parted from California gold. In the past few months the Washoe mines begin to furnish supplies.

The amount of specie actually in the country cannot be ascertained with any great degree of accuracy. The amount coined, the quantity imported and exported, afford data by which to estimate it, and these estimates have been made from time to time. Taking the amounts coined, the amounts in bank, and other data, the officers in the treasury estimated the amount in the country in 1821 to be $37,000,000. The calculation, then, up to 1849, upon official figures, would be as follows:—

Specie in the country in 1821,		$37,000,000
Product of U. S. mines to 1849,		13,811,206
Imported 1821 to 1849,	242,239,061	50,811,206
Exported " "	180,596,664	61,642,397
Specie in the country in 1849,		$112,453,603

Of this amount, $43,619,000 was in the banks and $5,700,925 in the federal treasury. Of the remainder, $32,133,688 was estimated to be in circulation, and $31,000,000 in plate and ornaments. From 1849 to 1859 the amount has been as follows:—

In the country in 1849;		$112,453,603
Coinage, 1849 to 1859,		529,619,919
Supply to 1859,		$642,073,522
Import of the metals, 1849 to 1859,	78,888,864	
Export " " " "	435,028,906	
Excess export,		356,185,042
In the country in 1859,		$285,888,480

This gives an increase of $173,434,877 of specie in the country in ten years, to the first of 1860. The distribution of this money was nearly as follows:—

Stock in the country,		$285,888,480
United States treasury,	$10,000,000	
In all the banks,	104,537,818	
In plate, ornaments, &c,	50,000,000	
In general circulation,	121,350,662	
		$285,888,480

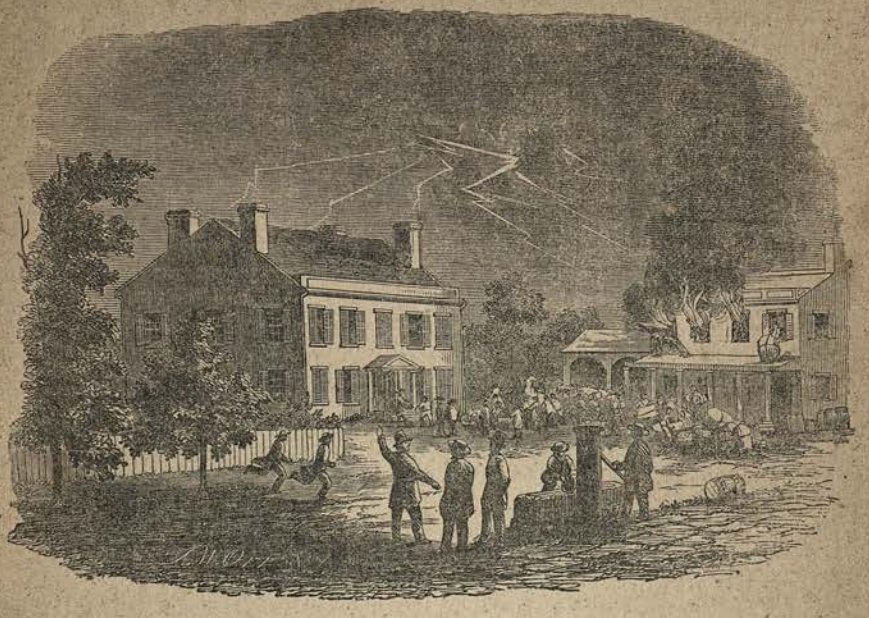
There are large sums of money and metals that come into the country in the hands of emigrants. As these are no longer a legal tender, they find their way either to the mint or to the broker for export. We may now, on this basis, ascertain the amount of money that circulates in the country, as follows:—

	1849.	1859.
Bank circulation....	$128,506,000	$193,306,818
Less notes on hand	16,427,000	18,858,289
Bank notes in circulat'n	112,079,000	174,448,529
Specie in circulation	32,133,688	121,350,662
Total mixed circulat'n	$144,212,688	$295,799,191

The specie, as we have seen, is one-third in small silver coins, and the mixed mass is largely of the precious metals. The country, as a whole, has had its specie capital, which is a "machine of trade," increased over $173,000,000 in the last ten years.

The mint operates upon the various forms of the metals brought to it, and these are of great variety, from the most delicate plates and ornaments down to base alloys, and these are all included under the general term bullion, except United States coins. The bullion is either unwrought or manufactured. The first description embraces gold dust, amalgamated cakes and balls, laminated gold, melted bars and cakes. The "dust" is the shape in which it is derived by washing in North Carolina, Georgia, South Carolina, Virginia, and various states, besides California. In South America, Russia, and elsewhere, amalgamated gold is that which has been procured by the use of quicksilver, which combines with it, forming a lump. Laminated gold is that which is combined with silver, and derived mostly from Central America. Bars and cakes of six inches in length, and from one-half to one inch in breadth and thickness, are the forms into which the metal is cast at the mines. A bar of fine gold, six inches long, three wide, and one and a half thick, would weigh two hundred and seventy-five ounces, and its value would be five thousand nine hundred dollars. These are mostly the forms of unwrought gold received at the mint. The manufactured is mostly jewelry, plate, and coin. The first mentioned is received at the mint in every variety of article into the manufacture of which gold enters. These are of every form and fashion and degree of fineness. The value of all depends upon the quantity of pure gold in them, and this requires to be extracted by the melters' and assayers' art. The range of fineness of most jewelry is 300 to 600, or from 1-3 to 2-3 the value of coin of the same weight. In other words, where coin is 94 cts. per dwt., jewelry is worth 31 to 60 cts. the dwt. A good deal of "fair" jewelry is found to be worth 4 to 10 cts. the dwt. All this mass of metal must, by the melters and refiners, be reduced to a uniform material, containing the exact proportion of alloy allowed by the law. They are then in the shape of bars, twelve inches long, half inch thick, and from one to one and a half in breadth, according to the size of the coin to be struck. They are subjected to a test to see if they are of the legal fine-

ness. They are then annealed, or heated to a red heat. This is to soften them for rolling, which is done into long thin strips by the power of a steam engine. These strips are then passed through plates of the hardest steel, by which they are "drawn" to their proper thickness. This being done, they are by a steam press cut into "planchets" or pieces of the exact size of the coin wanted. This "press" cuts one hundred and sixty per minute. The strip remaining full of holes is rolled up and sent back to the melting pot to be reformed into a bar. The planchets are then cleaned, annealed and whitened, and their weights accurately adjusted. They are then placed in a tube, which slides them one by one into a steel collar, in which they fit. The piece is then instantly pressed on both sides by the dies, and is instantly pushed away with perfect impressions on both sides, to be followed as promptly by another piece. The "dies" that make these impressions are of alabaster work. The devices are first cut in soft steel, those parts being sunk which are raised on the coin. This "original die" is then hardened, and is used to impress a piece of soft steel, which is then like a coin with the figures raised, and is called a "nub." This being again hardened, is used to impress dies, with which the coining is done, and a pair of them will do two weeks' work. The coining presses are of sizes proportionate to the work. That which impresses a half dime is a toy compared with the massive structure required for a dollar. The dollar and half dollar are struck at the rate of sixty per minute, the quarter dollar seventy-five, and the dime and half dime ninety per minute.



INSURANCE.

CHAPTER I.

FIRE—MARINE—LIFE.

When industry and commerce began, in modern times, to develop themselves, after the "age of chivalry" was gone, capital augmented itself in the hands of individuals, for the prosecution of various enterprises. It soon became evident, however, that the capital in these employments was exposed to entire loss from the accidents of fire, storms, and other vicissitudes, over which the owner had no control, and which his utmost foresight or sagacity could not prevent. This fact was a drawback upon enterprise, since every undertaking involved the chance of total ruin to the projectors; but when the commercial spirit became more largely developed, in the fifteenth century, some of the inventive spirits of that age devised the principle of insurance, by which a possible loss would be divided among a great number of persons, in such a manner that each would feel it but in a small degree. The individual merchant would thus be enabled to embark in his adventures secure from ruinous accidents. The principle of insurance thus devised was that of "average," or an application of the law of chances, which, it was discovered, obey certain rules. Nothing is more uncertain than winds and weather, or the accidents of fire, which occur in the face of the utmost care to prevent them. Births and deaths, and many other con-

tingencies, seem to obey no law whatever, yet, taken in great numbers, it is found that the average that occurs in a given time is almost certain. If we look at single families, we find that some are all boys, others all girls, and many are of both sexes, without any apparent proportion. Yet the census returns of all civilized countries show that there are twenty-two males for every twenty-one females; and that, notwithstanding the uncertainty of death, this proportion will hold good through the lives of generations. The number of houses burned in a year, in any given locality, obeys the same law of average as do all the accidents of life. The number of ships engaged in any trade, that are lost, comes under the same rule. To fix the rate of average, however, a very large scale of experience is necessary, and the rate of premium is adjusted on the basis of the average. Thus, if there are forty ships engaged in a particular trade, and of them one is lost every year, then the chance of loss is one to forty, and the owner of the ship insured should pay one-fortieth part, to cover his risk, exclusive of the sums required for the expenses and profits of the insurers. Upon this principle the whole community came, as it were, to be responsible for the losses of individuals, and commerce received an impulse in consequence, since enterprises could be undertaken with more confidence. Toward the close of the seventeenth century, the same principle was applied to fire risks, and any description of property came to be protected from loss by the payment of a rate of insurance which experience showed, properly improved, would cover the average losses. Some half a century later, the principle was applied to life insurance, by which a person, on the payment of a certain sum annually, at a rate fixed by the largest experience, will insure to his heirs the sum covered by the amount he pays.

These three descriptions of insurance have flourished greatly in the United States in the last fifty years—the marine and fire risks particularly. Before the formation of the present government, insurance in this country seems to have been confined to individual underwriters, who wrote risks in their own names. In 1792, there was, however, incorporated in Philadelphia, the Insurance Company of North America; in 1799, the Providence Company, at Providence; in 1806, the Eagle Company, of New York, and some were chartered at Boston. All these companies were chartered as stock companies, and are, with many more, still in existence. The fire insurance of the country has naturally grown more than either of the other branches, since every citizen in the country is more or less interested in protection against fire. The immense quantities of goods that are sent from the factories and merchants, to be distributed in the interior, and all the produce which seeks a market, require protection against the accidents of fire, as well as those of internal transportation. The multiplication of houses and stores, with their contents, in all parts of the country, involves a growing necessity for insurance; and this every prudent man effects, not only to protect his own property from loss, but as a means of credit. The credit system, on which so much of the business of the country is transacted, makes it necessary that the utmost security should be given to the goods sold, and insurance is insisted on very generally by the sellers. A man who does not keep his goods insured has far less standing than one who does. The object of being insured is, of course, safety. The premium is paid annually, in the hope of receiving back the amount of loss in case of fire. At the same time, the insurer seeks to get this done at as low a rate as possible; nevertheless, there is a point below which the premium cannot be reduced without involving the solvency of the company. The law of average fixes the rate which the company must charge, in order that its income, improved at compound interest, shall suffice to meet the liability it undertakes; but this charge is "loaded" with a sum to meet profit and expenses. The great competition among companies guarantees that the charges shall be kept at a low point, and inducements are sometimes held out, of lower rates, to attract business. There are three modes of organization of insurance companies; these are the stock companies, the mutual companies, and the mixed companies. The first mentioned have a capital subscribed by any number of persons, who become incorporated in a company. This capital is a guarantee that the company is able to pay if losses occur. The capital must be safely invested in such a manner that it can be called in, if wanted. They then issue policies on certain terms, at certain rates of premium, dividing all the profits of the business among the stock-

holders. The premiums paid in, if fixed on sound principles and well employed, will generally suffice to make good all the liabilities until the reserve, or surplus profits retained, have grown into a guarantee fund. Out of this fact, resulting from experience, grew the mutual system of insurance. This was contrived after the "great fire" in London, 1666, and was introduced in New York after the great fire of 1835. By this system the company has no capital—the premiums paid in become the fund from which all losses are paid. The rates are charged on a sound principle, and the aggregate improved at compound interest. After the expenses and losses are paid, a certain portion of the surplus remains to increase the assets of the company, and the balance is divided among the insured according to the amounts they have paid. Thus the profits, instead of going to stockholders, go back to those who paid them into the company. This system, on its face, is by far the most economical in its action and beneficial in its results. It has been objected to it, however, that in a new company, with the small business incident to beginners, before there has been any accumulation of profits, the security is insufficient. To meet this objection, among others, mixed companies are sometimes started. They have a capital paid in, and this draws dividends from their first profits, to a certain extent, the insured getting a share of the remainder of the profits. Where the business is skilfully conducted on sound principles, the mutual system seems to command the most advantages. The stock companies assert that nothing is gained by the insured paying in money, in the shape of a premium, for the chance of getting it back again as profits. The object is, however, security; while the funds are in the hands of the company, the liabilities are well covered, and these are not divided until replaced by new accumulation. In the case of the stock companies, the accumulations are paid over to stockholders, the insured getting nothing. In some of these companies, the stockholders get their whole capital back every four years! yet the means of the company do not grow. The funds of a company require to be invested in securities of the utmost safety, and these, for the most part, only give the lowest rates of interest. It is only when a sum sufficient to meet all incurred claims is set apart in the best securities that can be had, that a company is justified in seeking, for the remainder of its means, second-class securities that give a higher rate of interest. The mutual system has been a favorite in some states, but in New York its reputation has been sadly damaged by the explosions of fraudulent companies. Thus in 1849, a general law for the organization of insurance companies was passed, and under it, forty-two companies were organized and reported in 1853. Of these, thirty-three have gone down, under circumstances of outrage and wrong inflicted upon citizens, which have gone far to destroy the reputation of that class of companies.

In Massachusetts the mutual principle has been more successful than the stock organization. The amount at risk in the former is $214,725,821, and in the latter it is $132,854,841. The movement does not appear to be entirely safe, however. There are sixty-nine mutual fire companies in the interior of Massachusetts, most of them so small as to make the policies of little value, since to pay losses, assessments would be required, and these are fatal to the standing of the companies. The losses by fire in Massachusetts were, last year, $1,241,669; of this, two-thirds was borne by the stock companies, and it is a sum double the losses of the previous year.

The laws of New York, where the largest amount of insurance has been done, indicate the changes which have taken place in the course of business. Up to the revision of the state constitution in 1846, it was usual to grant special charters for the incorporation of companies, and fire, marine, and life powers were often granted to a single company. In 1849 a general insurance law was passed, by which any number of persons exceeding fifteen might organize into a company for fire and marine insurance, but it was expressly ordered that no company insuring lives should take any other kind of risks. In 1853 another act was passed, by which it was ordered that no fire company should be incorporated to take any risks but fire and internal navigation. In 1836, when the great fire in New York had swept down nearly, if not quite all the existing companies, there were started eleven mutual companies, that still exist. In 1837, four more were started, and the number was increased by four more up to 1849. Under the act of that year, forty-two were started, of which nine remain. The mutual fire companies now in New York state compare as follows:—

	No.	Assets.	Cash on hand.
1853,	62	$11,621,914	$766,284
1859,	28	4,793,506	161,802
1860,	27	4,128,101	

This shows the decline of the mutual principle in New York; and a number of those now existing show such returns as point to winding up. The stock companies, on the other hand, showing a rapid increase, are most of them in the city of New York, while the mutual companies are all in the interior. Of the existing stock companies, twenty-one were organized prior to 1838; under the act of 1849, thirty-eight; and under that of 1853, thirty-seven were organized, making ninety-six now in operation, with a capital of $20,007,000. Of these companies, eleven, with a capital of $1,900,000, were organized in 1859. In addition to the New York state companies doing business in New York, there are companies chartered in other states, and English companies, doing business within the state. Formerly, or up to 1836, foreign companies could do business in New York by paying a tax of ten per cent. of the premiums. This assessed them about $2,369 per annum. The tax was then reduced to two per cent., which, in the ten years ending in 1846, amounted to $3,183 per annum, being an increase in amount of $813 per annum arising from one-fifth of the tax. The capitals and premiums of the New York fire companies were as follows:—

	No.	Capital.	Premiums.	Risks.
1844,	20	$5,710,000	$837,000	$119,571,000
1859,	92	19,407,000	7,692,635	701,215,624
1860,	96	20,007,060	8,032,493	719,267,809

In the year 1845 again occurred a large fire, which, burning the lower end of Broadway, and a large amount of property, swept into bankruptcy many of the fire companies. The law of 1849 favored the establishment of new ones, causing great progress in the fire companies in New York in the last fifteen years. This large and increasing business has been of great profit to the companies, as appears from the handsome dividends declared. In the last eight years, the twenty-one companies organized prior to 1838 have declared dividends ranging from 106 to 236 per cent. The average is 142 per cent., or 18 per cent. per annum on the stock. The dividends of the other companies are not so large, but they show a handsome investment. Some of the companies are mixed; these declare dividends in cash on the stock, perhaps 5 per cent. semi-annual, and 20 or 30 per cent. in scrip on the earned premiums of the participating policies. All the policies are not participating. The plans are much diversified. The policies participate to a greater or less extent, as declared upon their face. The principle is this: if the year's business is $100,000, and of this, $40,000 is found to be profits, one-fourth of this will go to the stockholders, and there remains $30,000 for the participating policies. These policies may compose a greater or less proportion of the business. Under the supposition that it is six-tenths, or $60,000, then the dividend is called 50 per cent.

The law of 1853 permitted companies of other states to do business if possessed of the *active* capital required of companies in New York, and on compliance with certain conditions prescribed. Under this permission, many companies of Rhode Island, Connecticut, Philadelphia, New Jersey, Massachusetts, and Georgia have transacted business to a considerable extent.

In New England the insurance business has taken dimensions second only to those of New York. The Ætna Company of Hartford is one of the most successful companies of the world. It was founded in 1819. It has a capital of $1,500,000, and its whole assets are now $2,194,100; while its risks are $129,042,300 on fire, and $15,781,101 on inland navigation. This company, in the last year, added $500,000 to its capital from accumulated profits, and divided $200,000 cash.

The amount insured against fire by these companies, the annexed table gives at nearly $2,000,000,000. The companies of other states than those mentioned, and of which we have no returns, would add, probably, $500,000,000 to this amount; and there are some risks, probably $50,000,000, taken by the English companies doing business here. This vast sum of property insured against fire, is the growth of the last fifty years, and we may compare it with the insurances of some of the European countries. Thus, in Great Britain, the fire risks amounted to $3,905,432,665, or double those of the United States; in France, the fire risks are $6,500,000,000; in Germany, the fire risks are $4,075,000,000. Thus the United States have already a fair proportion of property covered by policies, and the system extends itself gradually.

In New York the company having the largest risks is the Home, of $51,045,691. If we bring together the returns of the leading companies of the several states, as far as returns are obtained, we have the following figures:—

CAPITAL, PREMIUM, AND RISKS, OF FIRE COMPANIES IN THE UNITED STATES.

	No.	Capital.	Assets, including capital.	Cash premiums.	Fire risks.
New York Stock	96	$20,007,000	$26,323,384	$6,421,342	$719,267,809
" Mutual	28	4,793,506	..	..	87,310,910
Massachusetts	99	6,353,100	..	1,266,183	347,580,662
New Hampshire	23	..	..	33,000	39,784,084
Providence	6	900,000	1,519,688	552,153	26,648,143
Connecticut	12	4,550,000	5,364,686	3,715,320	279,322,184
Philadelphia	10	2,908,181	6,510,601	1,913,417	139,229,374
Jersey City	1	150,000	179,713	36,109	5,231,061
Peoria, Ill	1	300,000	363,995	89,375	6,806,377
Augusta, Ga	1	375,000	952,588	194,407	7,000,000
Charleston	2	833,558	..	472,000	98,000,800
New Orleans	9	4,500,000	6,738,031	2,910,000	221,100,000
			$47,952,686	$17,603,306	$1,977,280,404

The Illinois company has $1,572,387 marine risks, in addition.

The losses by fire in the United States in 1859, where the damage was $20,000 and upward, amounted to $16,058,000, and the estimated total losses incurred by the underwriters was $22,000,000—burned up in a single year. The losses above $20,000 amounted in six years, ending with 1859, to $98,197,000; and the total estimate was $127,500,000—an enormous amount to be destroyed. This amount is apparently borne by the insurance offices, but it is really paid by all those who get insurances. It is their aggregate premium which forms the fund which pays not only this loss, but the large profits derived by the stockholders in insurance companies. The companies contribute nothing toward it. The extent of their services is to collect the premiums from the insured, and, after paying salaries and expenses, meet the losses and divide the surplus among the shareholders of the companies. This service is, of course, an indispensable one. It brings all the property of the community to guarantee individuals against serious losses.

Marine insurance differs from both fire and life insurance, both in the mode of transacting the business, and in the diversified nature of the risks against which security is sought. The great emporium of marine insurance for the commercial world is London, and it is there done through the medium of individual underwriters, who congregate at Lloyd's, which may be considered as the focus of the commerce of the world. There is not a seaport of any consequence, where it has not an agent to give intelligence of all departures and arrivals, ships spoken, wrecks, accidents, weather, and every item that affects navigation. In this way they are supplied with information from all quarters, and almost all vessels that float are registered, with every minute particular in regard to them; and vessels of all nations are more or less thus insured. In the United States, marine insurance was the first that engaged the attention of the eastern states, and it has, as a matter of course, been confined mostly to the great cities. In New York there are seven companies incorporated by special charters before 1849; one of these is at Buffalo. There are also seven which are organized under the act of 1849; of these, two were started in 1859. There are no companies organized in other states or foreign countries, that do business in New York, none having complied with the provisions of the law of 1859; and a fine of $500 each offence is imposed upon those who transact business without being authorized. The fourteen marine companies of New York have assets, $20,932,067, and received premiums during the year, $13,730,438; losses and expenditures during the year, $9,446,293. In the marine companies, after the profits of the year are made up, certificates are issued to each of the insured for his proportion of the profits; these bear interest, and have a market value. When the funds accumulate, these certificates are called in and paid off. As an example, the Atlantic Mutual was organized in 1842. The profits, as they were earned, were yearly paid to the insured in the shape

of the certificates. Thus, a dividend of thirty-five per cent. was declared Dec. 31st, 1859, and, for this, certificates bearing interest were issued. It was then found, after paying all expenses and interest on the outstanding certificates, that the reserve fund of the company amounted to $3,809,250 after paying off the certificates issued previous to 1858; and it was resolved to pay off those of that year. The whole account stood thus:—

Profits, July 1, 1842, to June 1, 1860,	$10,428,470
Certificates redeemed previous to 1858,	6,619,220
Net earnings on hand, Jan. 1,	$3,809,250

The dividends of scrip of the marine insurance companies of New York, as shown by the official returns, were as follows:—

	Capital and assets.	Premiums marked off.	Scrip rate per cent. 1859	1860
Atlantic	$6,002,732	$4,497,468	40	35
Anchor	372,559	49,127	—	—
Commercial	928,783	603,571	40	15
Great Western	3,396,258	2,801,664	20	10
Mercantile	1,425,102	894,775	20	11
New York	1,002,637	812,519	35	12
Orient	1,316,552	566,092	21	20
Pacific	1,005,966	823,655	43	30
Union	1,647,181	581,544	45	36
Columbian	1,264,443	755,142	12	—
Sun	1,914,220	1,025,167	30	—
Neptune	268,161 (new)	43,133	—	—
Washington	150,201 (new)	—	—	—
			264	169
Average			38	21¼

The totals and average are exclusive of the Columbian and Sun, which have not yet issued scrip.

In Massachusetts, the marine risks for the past year were $101,972,974; of this, $45,545,105 was in stock companies. The marine losses reached $3,905,186.

A large proportion of the risks taken in the eastern cities, is for internal navigation, and the loss by steam and sail in 1859 was $1,020,100; about two-thirds sail. The aggregate marine losses are very nearly $40,000,000 for the year.

Life insurance has taken large proportions of late years, and the amounts now at risk involve many millions. In 1825, the first company chartered, the Massachusetts Hospital and Life Insurance Company, commenced its business. In 1829 the New York Life Insurance and Trust Company was chartered. Though of the highest standing, and possessing fully the public confidence, both of these institutions found the trust business authorized by their charter to be more attractive than life assurance; and for several years neither of these companies has made any effort to increase the number of its policies. Most of the remaining companies in this country are of recent date, and very few of the number have seen the period of half a generation, yet the magnitude of this business is such that the following facts appear in the reports: In New York there are twelve companies doing business. The oldest of these was organized in 1830; two in 1859; and two more were established in the present year, 1860. These companies have a capital, with accumulation, amounting to $12,090,815, and the outstanding risks are $72,147,436; the annual premiums are $2,762,366. There are a number of companies of other states doing a life business in New York, and three English companies. These are required to comply with the New York law of 1853 in relation to security. This requires that a sum of $100,000 shall be lodged with the insurance department for the security of the policy holders.

In life insurance the principle is based on the average continuance of life, than which nothing is more uncertain as regards individuals or a limited number of persons. Nevertheless, in a large number, the average of those who arrive at a certain age is ascertained with much precision. To ascertain this, Mr. Milson, of the Sun Life Office of England, constructed a table from observations made at Carlisle upon 10,000 persons born nearly at the same time; the number of these that were alive in each subsequent year, until the whole were extinct. These are called the "Carlisle tables," and are supposed to give pretty accurately the average English life, and they are used mostly in this country, although it is supposed that life here is really shorter than in England. The tables show that of 10,000 born at the same time, 4000 lived to be 56. The number of those who died at 66 were 124. Hence the probability that a person now 51 will die in his 66th year is as 124:4000. The probability of life being ascertained, it remains to find what sum per annum a person must pay in order to obtain a fixed sum, say $1,000, for his heirs at his death. It is to be borne in mind that insurance creates nothing; all that it does for the individual is to take his money, and improve it at compound interest into a sum that it agrees to pay his heirs. The time of payment is the uncertain part, and this in a company where great numbers

are insured, is fixed by the principle of average. Suppose a person 35 years old wants to be insured for $1,000. The tables say his expectation of life is 31 years. The company assume that as a fact, and with them it is an agreement to pay $1,000 at the end of 31 years. What sum paid annually and improved at 4 per cent. compound interest will come to $1,000 in 31 years? This would be $17, but the company add to or load this with a certain per-centage to defray expenses and for profit, and the charge will probably be $27. This amount per annum for 31 years will, without interest, amount to $839, and improved at 6 per cent., will amount to $1,560 in 31 years. Thus, if the individual lives the whole time, and improves his own money, he will have 50 per cent. more than the company agrees to pay. The company have many sources of profit, however. The first is that they put the expectation of life lower than the fact. This is necessary in young companies. Thus, if among 10,000 persons, 4,000 live to be 56, it will not do to take that as the rule for 200 persons; but a less rate must be assumed, and a higher charge made. If the company's business increases, so that they get out 10,000 policies, they will have the full benefit of the average, or, in other words, the insured pay more than they ought. In the second place, the company calculates the premiums improved at 4 per cent., when they get really from 6 to 7. This makes the amount at the end of a year's time 50 per cent. more than the estimate. In the third place, the calculation of expectation of lives is for ordinary lives, whereas the lives taken are only those carefully selected. Those that are less likely to die are only chosen. Hence, this makes the rate of premium higher than the tables justify. In the fourth place, the profits of a company are increased by the forfeiting of policies by persons who do not pay up. There is also a profit when a policy is purchased from those who surrender. All those sources together tend to make the profits far larger than the simple compounding of the rates indicated in the tables would show. In the mutual system it is claimed that these profits are paid over with the amount insured at the end of the time, or at the death of the insured. There is no limit, however, on the expenses, which are an item in making up profits. It is apparent, from all these facts, that the money does not accumulate with the company faster than it would if the individual improved it himself, since the advantages of the company, in lapse of policies, etc., only offset the expenses they incur. The advantage is in the security offered for the repayment of the money. The idea that money will grow by the operation of interest any faster in the hands of a company than in that of an individual is a fallacy, which was some years since applied to building associations. These drew in large amounts of money in small payments from numbers of persons who were to obtain house lots, through some magical mode of making money grow. Disappointment generally attended them. In the case of the life companies, however, the contingency exists that the person insured may not live to accumulate his money. He *may* die as soon as he has made his first payment, in which case the operation is a good one for his family. This is the chance feature which is the great attraction, since the payment once made, there is the certainty that the family will not be destitute in case of death. It is only those in the best of health, however, that can avail themselves of this opportunity for security, since the lives in any degree doubtful are rejected.

In Massachusetts there are five life companies, which have issued 7,007 policies, and the risks are $17,408,713. The Mutual Benefit Company of New Jersey has outstanding risks, $22,559,177, and the Connecticut Mutual, $22,701,294.

The largest life company in the world is the Gotha, of Germany; it has 15,000 policy holders. The united German companies have insured for $35,000,000. The Equitable, of London, has the largest accumulated capital, having been in operation more than ninety years. It received, during a period of eighty-six years, premiums and dues to the amount of $95,338,180, which accumulated at compound interest to such an extent, that the company has been enabled to pay out $126,683,158 to families of deceased members and other policy holders; and for expenses, $2,091,180, retaining in hand an accumulated fund of $44,000,000 to meet running policies, and claims outstanding to the amount of $70,500,000. During one period of ten years, the Equitable paid out about $40,000,000. Its annual income is $2,850,000, and the number of policy holders about 5,200. The profits are divided among the oldest 5,000, in the order of their admission. The amount of life in-

surance effected in Great Britain, is $750,000,000.

The companies, in making up their profits, observe the greatest secrecy as to the mode of deciding upon them, and the results show the greatest variations. Thus, suppose a man thirty years old gets insured for life for $1,000. The absolute liability that the company has incurred, according to the Carlisle tables, is to pay a sum which will be created by compounding $17.50 per annum. That sum must be kept invested at four per cent., and without any loss or expense it will accumulate to the amount the company has agreed to pay, or $1,000. It is, therefore, charged to the insured, but the company has to pay its own expenses. It pays commission for getting business, and it meets such losses as depreciation of stocks, failure of bankers, non-payment of loans, and many other contingencies, among which are deaths soon after insurance. For all these risks an extra sum is to be charged, and the $17.50 is "loaded" with a charge of 31 per cent., or $5.40, and the charge is $23. Now the profits of the company consist in this "loading," less the actual expenses. Now the expenses of the leading mutual companies in New York and Boston are about twelve per cent., and in some as high as fifteen and seventeen per cent., and in some foreign companies as high as twenty-three per cent. Thus it is required, in making up profits, to deduct the "loading" from the gross premiums, and the remainder should suffice to meet the whole liabilities of the company. It is to be borne in mind, that premiums for time policy are higher than they should be at first, and lower than will pay as the insured advances. Thus, a person thirty years of age, insured for $1,000, will pay $23 per annum as long as he lives; yet for a single year's insurance, he would pay half the amount. The reason is, that when he shall have reached sixty, the amount will be less than a year's risk at that age is worth. Hence, in his younger days he pays more than he ought, and in his age, less. Now if a company takes that excess of payments on the young lives as profits, and divides it, whence will come the deficit when age makes the amount too small for the risk? These are some of the means by which profits are made to appear large in order to attract custom. The charges among the mutual, or those who admit the insured to a participation of dividends, are larger than those of the stock companies. The same companies make a great difference when participation is, or is not, admitted. Those companies where both principles are admitted insure for less rates, *without* participation, than the purely stock companies. The following are some of the comparative rates:—

COMPARATIVE RATES OF DOMESTIC LIFE INSURANCE.

PARTICIPATION OR MUTUAL SCALE, FOR INSURANCE OF ONE THOUSAND DOLLARS.

Age.	Knickerbocker.	Manhattan.	Mutual, New York.	New England Mutual, Boston.	N. Y. Life.	New York Life & Trust.	Ætna, Hartford.	Girard, Philadel.	American Life & Trust, Philadel.	Baltimore Life.
15.....	15.10	15.60	15.11	15.20	15.60	.....	.....	15.60	15.60	.....
20.....	17.26	17.80	17.30	17.30	17.70	.....	.....	17.70	17.70	.....
25.....	19.85	20.40	19.89	19.80	20.40	.....	.....	20.40	20.40	.....
30.....	23.08	23.60	23.02	22.70	23.60	.....	.....	23.60	23.60	.....
35.....	26.82	27.30	26.87	26.50	27.50	.....	.....	27.50	27.50	.....
40.....	31.71	32.00	31.73	31.50	32.00	.....	.....	32.00	32.00	.....
45.....	37.76	37.40	38.04	38.00	37.30	.....	.....	37.30	37.30	.....
50.....	45.91	45.40	46.42	47.00	46.00	.....	.....	46.00	46.00	.....
55.....	57.75	57.80	57.58	59.40	57.80	.....	.....	57.80	57.80	.....
60.....	74.30	74.60	.....	76.40	.....	.....	.....	.....	70.00	.....

NON-PARTICIPATION SCALE, FOR INSURANCE OF ONE THOUSAND DOLLARS.

15.....	13.59	14.10	.....	.....	12.48	14.60	13.00	.....	13.00	14.60
20.....	15.54	16.00	.....	.....	14.14	16.50	14.80	.....	14.70	16.50
25.....	17.96	18.40	.....	.....	16.44	19.00	17.10	.....	17.00	19.00
30.....	20.77	21.30	.....	.....	19.20	21.90	19.90	.....	19.60	21.90
35.....	24.14	24.60	.....	.....	22.20	25.30	23.00	.....	22.90	25.30
40.....	28.54	28.80	.....	.....	26.28	29.70	27.30	.....	26.70	29.60
45.....	33.98	33.70	.....	.....	30.72	34.70	32.00	.....	31.00	34.70
50.....	41.32	40.90	.....	.....	37.68	42.10	39.10	.....	38.40	42.10
55.....	51.97	52.10	.....	.....	48.60	53.60	50.60	.....	48.20	53.50
60.....	66.87	67.20	.....	.....	.....	67.50	66.20	.....	58.40	66.80

The mode of effecting insurance is, when the person proposes to insure he receives from the company a printed form, which he fills up with his name, place, and date of his birth, and many particulars as to his general health. He attends before the medical officer of the company, who makes further examination, and, when the results are satisfactory, the premium is paid at such times, and in such amounts, as is agreed or required, and the policy issues, containing many restrictions, or exceptions, such as death beyond certain limits, suicide, entering naval or military service, death by duelling or the hands of justice, etc. The lives of other parties may also be insured, where the insurer is in interest. The policy is also assignable as security for debt, and is saleable. Its value depends upon the time it has run, and the age of the insured. For example, if the policy is for $1,000, made at the age of thirty, the payment on it is $23; if the party is now fifty-five, and wishes to sell, the buyer will have to pay the difference between that sum and $57.58—which would be the premium if the policy was just taken out; this amounts to $34.85.

IMMIGRATION.

CHAPTER I.

GENERAL MIGRATION — COLONIES AND UNITED STATES.

At the date of the last national census, in 1850, more than one-tenth part of all the inhabitants of the United States were foreign born, that is, one soul in every ten had been born in a foreign land. Since that census, viz.: from 1850 to the close of 1859, two million five hundred and fifty thousand more aliens have arrived in this country, which, added to the number then reported as foreign born, would make very nearly one foreigner out of four citizens at the date of 1859. The natives have, however, since progressed in numbers, as have also the emigrants, and the progeny of these latter will class as "natives" in the forthcoming census.

The term "native" has been used to distinguish the born citizen from the newly arrived foreigner, as well as the former from the "red man," who was also an emigrant in the view of the lost races that preceded him, and of which monumental traces alone remain in evidence that he ever existed. The history of the human race, adopting the Mosaic account, is a history of migration. Twice has the race comprised only a single family, occupying a single point on the earth's surface, and twice has it spread in all directions, forming nations and founding empires. The antediluvian world was swept away by the deluge, and all traces of the race of Adam had been washed away by the obliterating waters from the earth's surface when the ark gave up its freight. From its door migration was resumed, and three continents owe their populations to the several sons of the patriarch. Asia, Africa, and Europe were settled by Shem, Ham, and Japhet and their descendants, who have stamped their characteristics upon each. From that day to the present the same recurring circumstances have from time to time produced the same results. As each locality became overcrowded by increase, the most adventurous sallied forth in quest of new homes, which, in their turn, filled, and overflowed into some more distant region. These successive waves rolling on until the remotest shores of each continent were occupied, were succeeded by more formidable hosts of armed invaders, who came, sword in hand, to dispossess occupiers and seize accumulated wealth. Successive empires have gone down before these barbarian hordes, and modern Europe has but lately recovered from the shock that attended the fall of the Roman empire amid a deluge of barbarians. With the growth of modern civilization migration has no longer a destructive character. It seeks to build up by bringing industry in aid of natural resources, rather than to destroy by seizing what others have produced. It is more steady, penetrating, and effective in its commercial character—having industry for a means and prosperity for an object—than in its old turbulent military form, plundering by force and leaving desolation in its train.

The British Islands were the last subjects of European incursions. The Britons, of mythic origin, were plundered by Norse enterprise, and the Saxons alternated with the Danes in dominating the nation on the withdrawal of the Romans, to be in their turn subjected to the Normans. Since then 800 years have been spent in amalgamating the races and in peopling the islands. Even at that date the adventurous Norsemen, in search of the whale, had discovered the new continent and formed a colony on what is now known as Newfoundland. It required long centuries, however, in that barbarous age, for the people to struggle successfully against the effects of feudal oppression, civil wars, and their consequences, famine and plague. Nevertheless, progress was made and commerce a good deal developed, when, at the close of the fifteenth century, the discovery of the West Indies by Columbus was followed by an influx of the precious metals

into Europe, giving a renewed impetus to industry and enterprise. The Spanish were attracted by gold, and the commercial Dutch by the desire to found colonies, and their example was followed by the English and French. In both these cases, however, the desire of civil and religious freedom was a powerful incentive to the emigrants. These motives were more strongly developed when the English revolution began to operate in the first half of the 17th century. The new world was then looked upon as the place of refuge, and Cromwell himself, with his companions, were only prevented from migrating by the interposition of that government that they afterward overthrew. Of the four leading nations that planted colonies on this continent, the English alone became permanently successful. The Spaniards sought gold only. The French settlement of the Mississippi was more a financial bubble of Law than a movement of settlers. The Dutch had not sufficient breadth at home to sustain the undertaking; and the English necessarily absorbed the whole, with their steady industry and abiding religious faith. The numbers of the colonists were continually reinforced by new settlers, and a trade soon sprang up which gave prosperity and wealth to the provinces.

The disposition to emigrate to America gradually gained ground as the eighteenth century advanced, more particularly in Ireland and the north of Scotland, which already enjoyed the advantage of some intercourse with friends in America, and whose descriptions of it formed a strong contrast to the distress at home. Just before the Revolutionary war, this disposition to emigrate showed itself strongly. The linen weavers in the northern part of Ireland were, by the decline in that trade, induced to migrate: For the two years, 1771 and 1772, sixty-two vessels, of seventeen thousand three hundred and fifty tons, left with eighteen thousand passengers for America, paying passages seventeen dollars each. Most of these were linen weavers and farmers, possessed of property, and they carried with them so much money as to attract the notice of the government. The movement, however, continued in 1773 and extended itself to the north of Scotland, whence the highlanders migrated in great numbers. There were then no means of ascertaining the actual numbers, nor were there, as since, in existence any of those admirable arrangements by the government or private companies for the comfort and aid of emigrants. Knox, in his view of the British empire at that time, asserts that in the twelve years ending in 1775, above thirty thousand highlanders emigrated, exclusive of the lowlanders; and it was computed that there were sixty thousand highlanders citizens of the United States in 1799. In the report of the committee on the linen manufactures in the Irish Parliament in 1774, it is stated that the whole emigration from the province of Ulster was estimated at thirty thousand people, of whom ten thousand were weavers, who, with their tools and money, departed for America; thus adding to the numbers and wealth in the new world, in the proportion that the British Islands lost from the same cause.

The breaking out of the War of Independence, naturally interrupted the communication between America and the old world; but with the return of peace, in 1783, the migration revived, notwithstanding the incredible hardships which at that time attended the transit. The shipping was little adapted to the trade, and no special laws protected the rights of the poor emigrant. As an instance of this, it is related that in September, 1784, a ship left Greenock with a large number of passengers, who had paid twenty-five dollars each for their passage. They were robbed of their chests and provisions by the master, and one hundred of them turned ashore on the Island of Rathlin, coast of Ireland. Another vessel rescued seventy-six emigrants from a desert island, where they had been turned adrift by the master of a brig, who had engaged to carry them from Dunleary, in Ireland, to Charlestown. In the same year there were great numbers landed at Baltimore, Philadelphia, and elsewhere. The movement continued with more or less vigor to the close of the century. Blodget's Statistical Manual, published in 1806, states that from 1784 to 1794, the arrivals were four thousand per annum. In the year 1794, ten thousand persons were estimated to have arrived in the United States. Adam Seybert, a member of the House of Representatives, in his "Statistical Annals," admitting the number for that year, states that so large a movement did not again occur until 1817.

When the colonies separated from the mother country, the population of the latter was, for England and Wales, 7,225,000, and about 2,000,000 for Ireland, making together 9,225,000 souls, or about one-third

the number of whites now in the United States. The population of the newly formed United States in the year 1790 was 3,174,167 whites, or about one-third the numbers in Great Britain and Ireland. The founders of the nation were then not unmindful of the fact that these three millions of people, occupying 163,746,686 acres of land, although possessed of a vast continent, had little else to depend upon. Capital was scarce, and manufactures had not been permitted under imperial rule, hence skilled artisans were not to be found. While all these things were indispensable to the new country, crowds of poorly paid and oppressed operatives on the other side of the Atlantic were impatient to enjoy the privileges that our new form of government held out to them. The French, German, and English troops, that returned home after the war, had not only left a portion of their numbers here as settlers, but had carried home favorable reports of the advantages to be here enjoyed. It was manifestly to the interest of the new government here to invite and encourage these settlers, at the same time to guard against possible political abuse of the privilege. The new Constitution therefore required Congress to pass uniform laws for naturalization. This was not done until April 14th, 1802, when the regulations that have since mainly continued were enacted. By that law, those aliens who were in the country prior to 1795 might be admitted to citizenship on proof of two years' continuous residence in the United States, sustaining a good moral character, and abjuring allegiance to foreign nations. Any alien arriving in the United States after the passage of the act was to comply with the following conditions:—

1. He shall, before some competent court, swear, at least three years before his admission, that it is his *bona fide* intention to renounce forever all allegiance to any sovereign state to which he was a subject.

2. He shall swear to support the Constitution of the United States.

3. Before he can be admitted he must show that he has resided within the United States five years, and within the jurisdiction of the court one year. He must also show that he has been of good moral character, and well disposed to the happiness of the United States.

4. He must renounce all titles of nobility.

The law of March 3, 1813, required that the residence of five years should have been continuous in the United States. This restriction was repealed Jan. 26, 1848. The law of May 26, 1824, reduced the term of notice of intentions from three to two years. These were the chief regulations of the federal government in relation to naturalization. Many of the states have, however, from time to time, passed laws relative to immigrants, importation of paupers, convicts, lunatics, etc. New-York and many other states have laws requiring of the owner, or master, or consignee of the passenger ship, a well-secured bond to the people of the state against loss for the relief or support of such passengers. In lieu of this bond, commutation money may be paid.

The federal government having smoothed the way, the migration proceeded until unfriendly relations between the United States and Great Britain, growing out of the wars of Europe, checked intercourse. The claim enforced by Great Britain to the principle, "Once a subject always a subject," served to take from emigrants the security they sought under the American flag; and in 1806 Great Britain declared France in a state of blockade, and France retorted upon the British Isles. These proceedings being succeeded by others, compelled the United States, in 1809, to prohibit intercourse with France and Great Britain. In 1810 Napoleon annulled his decree, but Great Britain continued her vexations, seizing American seamen, and riding rough-shod over their rights. The embargo was then succeeded by the war of 1812, during which migration was very limited. In February, 1815, peace was concluded, and the stream of migration, long pent up, resumed its flow with greater force. The accommodation was, of course, limited, and the more restrained that a law of Parliament restricted the number that might be carried to the United States to one for every five tons, although one for every two tons might be carried to any other country. In the year 1817, 22,240 persons arrived in the United States, including Americans who returned home. This large migration, at a time when the business was not systematized, and when shipping was not built with a view to its accommodation, was attended with immense suffering. The attention of Congress was called to it, and a law was passed, March 2, 1819, to regulate the transportation of passengers. That act limited the number to two for every five

tons of measurement, and provided for an ample allowance of food and fuel. When the famine of 1846–7 gave a new impulse to the movement, more complete laws were found requisite, and a number were passed: that of Feb. 22, 1847; March 2, 1847; May 17, 1848; March 3, 1849; and finally, March 3, 1857, the present passenger act was enacted, repealing all former laws upon the subject, and establishing the regulations now in force. This regulates the space for each passenger, the number and construction of the berths, requires a house upon deck, the ventilation of the ship, regulates the number and size of cooking-stoves, obliges the ship to furnish each passenger with food, viz.: twenty pounds bread, fifteen pounds rice, fifteen pounds oatmeal, fifteen pounds peas and beans, twenty pounds potatoes, one pint vinegar, sixty gallons water, ten pounds salt pork, ten pounds beef free of bones; this food is to be dealt out one-tenth part weekly, and if any passenger is put on short allowance, the master or owner shall pay him three dollars each day of short allowance; enforces perfect cleanliness. There are also a number of other rules in relation to the mode of carrying out and enforcing these requisitions. The laws and regulations in the United States have come in aid of the efforts of foreign governments in ameliorating the difficulties of the emigrant; and these laws have, no doubt, tended to swell the numbers of the passengers.

The first authentic accounts of the numbers of immigrants, therefore, commenced in 1820, under the law of 1819. These accounts have been continued down to the present moment with great regularity, and the aggregate results are seen in the following table, showing the birth-places of the emigrants that have arrived in forty years:—

NUMBER OF ALIENS ARRIVED IN THE UNITED STATES.

From	1820 to 1835.	1836 to 1845.	1846 to 1850.
England	21,595	10,327	23,608
Ireland	50,304	29,430	138,892
Scotland	5,658	680	3,221
Wales	347	115	1,154
United Kingdom	108,362	405,481	613,597
Great Britain	186,266	446,033	780,472
France	26,638	51,488	53,588
Spain	3,565	2,232	1,153
Portugal	391	202	466
Belgium	33	1,008	4,083
Prussia	433	13,321	2,771
Germany	52,868	197,729	326,667
Holland	1,757	2,631	6,402
Denmark	467	959	365
Sweden & Norway	509	5,521	9,168
Poland	164	310	21
Russia	325	263	329
Turkey	23	31	33
Switzerland	6,020	5,155	1,597
Greece	29	50	6
Italy, Malta, &c.	2,339	1,136	1,200
Europe	2	48	3
British America	6,677	20,735	30,421
South America	1,004	918	3,055
Central America	147	38	334
Mexico	9,033	4,232	1,423
West Indies	9,528	12,115	8,184
Asia	46	50	49
Africa and Australia	546	174	329
All other	87,707	10,388	50,796
Total	397,015	776,767	1,282,915

From	1851 to 1855.	1856 to 1860.	Total 40 years.
England	151,592	82,172	289,654
Ireland	529,304	170,799	918,729
Scotland	25,000	11,718	46,277
Wales	3,916	2,544	5,076
United Kingdom	221,242	61,823	1,410,505
Great Britain	928,054	329,056	2,670,241
France	57,020	15,377	204,111
Spain	4,301	4,065	15,316
Portugal	490	443	2,492
Belgium	1,867	2,818	9,809
Prussia	19,450	20,692	56,667
Germany	627,823	229,211	1,434,298
Holland	6,793	3,645	21,228
Denmark	1,268	1,939	4,998
Sweden & Norway	14,253	7,390	36,841
Poland	823	259	1,577
Russia	21	371	1,309
Turkey	36	43	166
Switzerland	13,349	5,749	31,990
Greece	23	7	115
Italy, Malta, &c.	3,670	3,249	11,594
Europe	473	10	536
British America	33,866	20,929	112,628
South America	463	553	5,993
Central America	121	320	960
Mexico	1,281	1,568	17,527
West Indies	5,490	3,786	39,103
Asia	16,693	19,296	36,134
Africa and Australia	1,074	1,843	3,966
All other	19,772	23,531	182,174
Total	1,748,474	696,150	4,901,683

The returns gave the number from Great Britain in many cases without distinguishing the particular divisions where all the passengers were born. A very large portion of the whole, however, came from Ireland. The return shows, then, that Ireland and Germany furnish the largest proportion of the emigrants. Other nations have supplied a greater or less number, but irregularly. Since 1850, or the era of gold discovery,

Asia—that is to say China—has sent a considerable number to California. Those do not, however, as a general thing, intend remaining. They are for the most part fitted out with small sums borrowed of friends and neighbors, who share in the profits of the adventurer on his return. Numbers of those who come from other countries, as France, West Indies, and Southern Europe, as well as to some extent from England, are merchants and travellers, who are not to be embraced in the aggregate of settlers in new homes. The great sources of migration are, then, British and German, and the latter are confined mostly to the valley of the Rhine. The people of the north of Europe do not migrate much. They seem to have lost the nomadic character of their ancestors. It is true that then they were led by chiefs and tempted by plunder to overrun the richer countries of the west, while at the present day migration has no object but to seek an honest living in countries where labor is in demand, and where hospitality and protection await the worker. The Russian, unless in charge of his master, cannot quit his native soil, of which he is, as it were, a portion. Whoever should penetrate into Russia for the purpose of recruiting emigrants, would be treated as a robber of property, and the Russians in the table are mostly merchants and travellers. The Swede and the Norwegian are more free in their choice, but the greater freedom they enjoy is an inducement to remain at home; nevertheless, they figure as high in the tables as the Swiss. These latter are to a considerable extent free and thrifty in their mountain homes, but great divisions exist in respect of religion as well as politics, and there is among them a want of nationality. The cantons of Vaud and Geneva are mostly French, and threaten to become quite so. On the side of the Tyrol the Swiss become Italians. The German Swiss is mostly connected with Baden, and he is embraced in the German movement. Although the Swiss is attached to his country, he is enterprising, and is to be found in almost all countries. Every important city has Swiss firms among its most considerable merchants, and one of the early secretaries of the United States treasury, A. Gallatin, was a Swiss. The Hollanders migrate to some extent, and often from motives of religion. The Moravian Brethren thus founded colonies in Pennsylvania. Gold seems, since its discovery in California, to have stimulated Dutch enterprise. The Italians and Spanish do not migrate in the true sense of the word; they leave their homes to some extent for the countries that border the Mediterranean, but they do not, unless under the ban of exile, cross the Atlantic. The Sardinians and Basque Spaniards go to some extent to the La Plata in South America; they do not frankly abandon their country to adopt a new one. The French are more markedly attached to their native soil and national character, and colonise little; they migrate hardly at all. Even Algiers has grown but very slowly under thirty years of governmental fostering care, and there are now but 60,000 French in that colony. Of those French who arrived in the United States up to 1850, but 14 per cent. remained in the country according to the census.

The great continental movement is, then, on the part of the Germans, and of these the valley of the Rhine is the chief source.

CHAPTER II.

EUROPEAN MIGRATION—FRENCH AND GERMAN—NEW TRADE.

The peace of 1815, in re-establishing the liberty of the seas, so long suppressed, opened new countries to European commerce. On the other hand, many interests underwent adverse changes; numerous armies were newly disbanded, and great numbers of men were forced to leave home in search of a useful application of their talents and energies. America was to them the chief point of attraction; those who knew only the trade of arms, offered their swords to the Spanish colonies then fighting for emancipation. Of these a majority found early graves from excess, fatigue, and misery; many turned their attention to agriculture, and the wisest sought refuge in the United States, where services were well requited, and the broad territories offered a limitless field for activity. At first the emigrants were isolated individuals; soon entire families went in quest of new homes, and their success was a tempting example to other families, each of whom drew others in their train, until a regular and continuous movement was established from the valley of the Rhine to America.

This developed a new era in the international commerce. The cotton of the southern states had up to that time found a limited

market in Havre, but being carried thither in American ships, there being little return freight for those vessels, the cotton was charged with freight both ways, out and home. The moment that considerable numbers of passengers offered themselves for the return, that trade of itself became an object, affording a profitable home freight. It was then apparent that the light and elegant models of the American ships, which had so well answered the purpose of speed and efficiency during the war, were not adapted to the transportation of passengers. A different style of construction was needed, allowing of greater stowage of cotton out, and better accommodation to passengers, in accordance with the provisions of the law prescribing the room to be allowed to each passenger. This change causing greater attractions to the American ships, drew increasing crowds from the valley of the Rhine across France to Havre. Many of these poor people could raise only the sum needful for the passage, and depended upon begging their way across France to the port. These crowds of beggars alarmed the government, and it took measures to stop them. It was ordered that no one should be admitted to cross France unless he had previously paid his passage in the ship, was possessed of $150 for every member of the family over eighteen years of age, and had his passport signed by the French embassador at Frankfort. The effect of these absurd regulations was to destroy the trade of Havre, and turn the migration down the Rhine to Antwerp, Bremen, and Hamburg. The Havre merchants made great efforts to remedy the evil by sending agents to aid the emigrants, lending them the money to pass the frontier, and to be returned immediately after. A great rivalry was thus engendered between the northern ports and Havre, which still had great advantages in respect of the number of American vessels that arrived with cotton, and finally the obstacles interposed by the government were removed. The city of Bremen was prompt to take advantage of the error of the French government, and used every effort to attract the emigrants to that port, by granting facilities and protecting them from imposition. A law was passed regulating in the most minute particular the accommodations to be given to emigrants on shipboard. They are not to be taken on board until the moment of departure. To accommodate them prior to shipment, an immense building was constructed to hold 2,000 people; it has a front of 200 feet, and is 100 in depth. It has public rooms, sleeping apartments, kitchens, baggage-rooms, etc., and is warmed by steam throughout. There are also chapels for catholic and protestant worship, and a hospital, with thirty-three beds. The price charged with board is fourteen cents per day. By these and other means Bremen has acquired a large share of the emigrant business. Hamburg did not make the same efforts; and it is only recently that societies for the protection of emigrants have been there formed.

One-third only of the Germans leave German ports. The expense of reaching there is about the same as to go to Havre. They, indeed, find in the language greater facilities, but the voyage thence is longer and the vessels are mostly German, whereas at Havre they find Americans, where the accommodations are better, and once on board of them, they feel as if they had already reached the country of their adoption. The passage across France is also greatly facilitated by the freight agents. The Bremen vessels have not the same facilities for return freight as the Americans at Havre. The Germans go nearly all to the United States, that is from Havre to New York or to New Orleans. There are numbers who go from Rotterdam, Ostend, or Hamburg, to England, and depart thence to their final destination. From Bremen the destinations are more numerous than from Havre. The United States is, however, the ultimate destination of nearly all.

The motives that impel German migration are variously understood. The reports of the numerous emigration societies give evidence of the highest traits of character. The German is described as a persevering worker, seeking to ameliorate his condition. He is always ready to go where his services will be the best paid, and certain professions have long been pursued by him in all countries. If his feeling of nativity is strong, his love of family is still stronger. And, moreover, the Teutonic race may now be said to be at home on half the entire globe. There are, however, other motives, and these are evidently the desire to find civil, political, and religious liberty, of which they have not the perfect enjoyment at home. The Germans have never succeeded in founding colonies of their own under good government, but they are a valuable acquisition where others have established liberty and order. They

seek exemption from military service. They wish to contribute in just proportion to the public expenses, of which they enjoy the benefits, as equal citizens. They seek to escape the trammels of corporations. They wish also freely to dispose of the fruits of their own industry, and by so doing to avoid the misery of destitution. All this that they seek is evidently that which they have not got, or at least very imperfectly, at home.

The emigrants belong to many different states, and the same reproaches do not attach to all governments, neither in the same proportion to all. The very divisions of Germany are an injury to industry. They cause the proportion of the general expenses to be heavier for each individual, and destroy the spirit of nationality. The idea of "German unity" cannot be strongly impressed on the minds of people who leave the soil annually in crowds of two hundred thousand.

The German governments have all, more or less, occupied themselves with the question of migration, and in some cases have sought to check it. Among these attempts was that by Prussia to found agricultural colonies. The king offered lands in the duchy of Posen, and agents were sent among the emigrants from the valley of the Rhine. The conditions were, that the settlers should not leave the country without permission, and never without having performed military service.

These, it may be supposed, were without success. Emigrant agents are, by some governments, required to submit to regulations; sometimes the number is limited, and sometimes they must give security. In Bavaria only two houses are authorized to treat with emigrants for their passages across France, and the contracts must be inspected by the consul at Havre. There results a large clandestine emigration to avoid these restrictions, and at the frontiers numerous agents are ready to assist — a sort of underground railroad. The governments of Wurtemberg, Baden, and the two Hesses, are less rigorous, but nowhere can passports be obtained until every effort has been made to dissuade the emigrant. In case he persists, he must renounce all rights of citizenship and nationality. On the other hand, measures are taken to aid the emigrant. When the cause of departure is destitution, the communes and the government subscribe, while stipulating that the emigrant shall renounce all right to ulterior aid. All the persons so aided go from one canton together. When the emigrants pay their own expenses and have a small capital, bands of numerous families from divers points assemble and depart together. Political exiles are very few, but these have generally considerable means.

It is melancholy, however, to reflect in how great a degree destitution becomes the cause of migration. Singularly enough, the valley of the Rhine, of which the German poets sing the beauty and the fertility, is precisely the spot, of all Europe, where the misery of Ireland is most nearly reproduced. From the Lake of Constance to the frontiers of Holland, that famous valley has so long felt the oppression of feudalism and been the battle-field of contending powers, as to have become completely impoverished. In the duchy of Baden the day's wages of a skilled workman is twenty-eight cents—a sum which may sustain life in a year of good harvest, but which is utterly insufficient in time of dearth, as in 1846, when potatoes became diseased. The insurrection of 1849 added to the calamities, and in 1852, of a population of 1,356,943 souls, 14,400 emigrated, or one per cent in one year. The thrift and endurance of the Germans are well developed in a land of such hardships, and on their arrival in the United States they are not slow in turning their persevering industry to account. It is singular that the distress and destitution which centuries of misrule have produced in Ireland, so famed for its natural advantages, should be reproduced in Europe only in the Rhine valley, the garden of Europe. The two localities best endowed by nature are precisely those where man is most anxious to escape by migration from an accumulation of miseries. The highest migration from Germany, by the four ports of Hamburg, Havre, Antwerp, and Bremen, rose to 203,537 in 1854. The movement has since declined, fluctuating with the harvests. There are, however, considerable numbers who go, by other conveyance from those ports than the emigrant ships, to Liverpool, and embark thence for America. This aggregate German movement has come of late years to rival, and in some cases to exceed the broad stream of British migration. The migration from Great Britain has always been largest in the year of dear food, and it has again subsided when good harvests have diminished the prices of bread. The number that went abroad in 1843 was 57,212, and it continued

to augment year by year until it reached 368,764 in the year 1852. Several causes concurred to produce this increase. The first was the famine of 1845–46–47, and the consequent means adopted by the British government for the relief of Ireland; the second was the gold fever, which carried off thousands; and the third was the prosperity of the emigrants in the United States, where railroad building and other employments gave the means to send for friends in unusual numbers. The most important cause was, probably, the condition of Ireland. The conquest of that country, which was commenced seven centuries since, is but now being completed. We now see the insubmissive Celts quitting, with the aid of their conquerors, the disputed country, to seek new homes beyond the seas. They cannot assimilate to the conquering race, and not being able to defend themselves, they abandon the country rather than submit. During all the time of religious persecution, from the reign of Henry VIII. to George III., the economical condition of Ireland was deplorable, and misery made incessant progress. The landed population became involved in debt, and a fatal subdivision of the land was introduced in the mode of culture. Farms were subdivided as fast as the people multiplied, which was fully equal to the proverbial fecundity of a state of extreme poverty, and the potato came to be the sole dependence of all for food. The sudden destruction of that dependence by rot was an overwhelming calamity, that brought matters to a crisis. It was felt that migration could not remedy the evil, but that a radical change in a wrong system was become indispensable. The system pursued had been for the landlords, mostly in debt, to absent themselves altogether. The land was then taken by "middle men," at a rate which hardly met the interest on incumbrances. This land was then parcelled out to the poor cotters in lots down to one-fourth acre or less, mere patches, at rates which gave a large aggregate rent to the "middle man." Those patches were planted with potatoes, which were the sole dependence of the family for food in the year. They were gathered, when ripe, into a pile, and that pile diminished by daily consumption until an approaching new crop found it exhausted. The supply of food for the year depended entirely upon the amount of the crop. Its yield was the sole dependence of the family to sustain life. The cotter had no property or capital of any kind to be made available in case of emergency. His only means of paying rent was an annual migration to England in harvest time to earn the necessary sum. That done, the balance of the year was idly spent in watching the sinking pile of potatoes. It may well be imagined how great was the horror that seized such a people when the sole barrier between themselves and starvation was found rotten, suddenly perishing under their eyes. The scenes that followed were awful to contemplate. All that could, fled, and these were mostly the robust males, leaving the infirm, the old, and the young to encounter the slow death that was gradually approaching, and which overtook multitudes. The greatest efforts were made by the British government to purchase and distribute food, and to employ hands upon roads. At one time over 500,000 were so employed. The introduction of the Indian corn was attempted as a substitute; but it was nearly impossible amid a people entirely ignorant of its use. Hand-mills were furnished to grind it, and the priests and others used great exertions to teach them to cook it. It was frequently the case, however, that the grain did not agree with the people, but exhibited poisonous effects on being eaten. The body swelled, and severe illness ensued. Migration and famine did its work in spite of all efforts of humanity, and the census of 1851 showed how awful had been the havoc.

The population of Ireland has been as follows, per official reports:—

1821,	6,801,827	1851,	6,553,291
1831,	7.767,401	1859,	5,988,820
1841,	8,175,124		
	Decrease from 1841....		2,186,304

In the ten years ending with 1831, the increase was one and a half per cent. per annum. From that date to 1841 it was nine-tenths of one per cent, and that was a period of much comparative prosperity. The crops were still good, and the failure of the English wheat crops in 1837 raised the prices of Irish grain, and gave much employment to its agriculturists. If it had continued the same rate up to 1847, the famine year, the population would then have been 8,616,680 souls, when the migration took place in large numbers, and continued the succeeding thirteen years down to 1859. The same increase in that thirteen years would have made the

population 9,651,678. persons, or as follows:—

Population in 1841	8,175,124
Ten years' increase at 9 per cent	735,761
The population should have been in 1851	8,910,885
Actual population	6,553,291
Loss by famine and migration	2,357,594
Number emigrated	1,422,000
Population in 1851	6,553,291
Ten years' increase at 9 per cent.	595,500
The population should have been in 1859	7,148,791
Actual population	5,988,820
Loss by migration, etc.	1,159,971
Number emigrated	1,742,260

In the famine years, up to 1851, 935,594 persons disappeared more than were accounted for by migration. From 1851 to 1859, there migrated 582,289 more persons than should have been lost by the census. This shows that there were numbers returned, and that the natural increase was large. The numbers who have returned have been, it is known, upwards of twenty thousand per annum, and these have carried back much larger sums than they brought with them. In this view the emigration reacts upon the northern states, the emigrants carrying off all that they have created. The whole operation above was as follows for thirteen years:—

Population in 1847	8,616,680
" 1859	5,988,820
Decrease	2,627,860
Emigrated	3,163,260
Excess	535,400

If this was all natural increase it would be in the ratio of one-half per cent. per annum. This year the failure of crops in Ireland has given a renewed impetus to the movement, and migration promises to be larger this year than for several previous ones.

The first reformatory efforts of the English government were to throw the support of the Irish poor upon the parishes, and as the tax became onerous the forced sale of the encumbered estates was authorized. The two measures have succeeded. The land has passed into thrifty hands; the bankrupt landlord is dispossessed, and the extortionate "middle man" is abolished; and the excessively poor population has been purged off by migration. The "clearing of the lands" was in many cases conducted with much barbarity. The little huts of the peasants were pulled or burned down, and the hapless people driven forth to seek homes beyond the seas as they best could. In other cases the landlords, the government, or societies furnished the means of shipments. The government soon found the necessity of interposing by law, as the United States had done, to protect them from the rapacity of shippers and their agents. The law of 1849 was passed with that object. By its provisions no ship shall carry more than one person for every two registered tons; nor shall there be more than one person for every twelve superficial feet on the main deck and below it. The size, number, and construction of the berths are regulated, and the captain is required to issue food as follows to each person twice a week:—

Bread	2½ lbs.
Wheat Flour	1 "
Oatmeal	5 "
Rice	2 "
Tea	2 oz.
Sugar	½ lb.
Molasses	½ "

A surgeon must be carried where there are one hundred or more passengers, and many other regulations that experience has pointed out as necessary, are enforced upon the carriers. The food is to be furnished entirely irrespective of the price of the passage, which fluctuates almost daily between $16 and $24 each adult, and half price for children. The starving and destitute race each year sends forth crowds from all parts of Ireland to embark at Liverpool. The means are mostly furnished by Irish in America, who consider it their duty to appropriate their first earnings in their new homes to the rescue of their relatives, and small remittances, aggregating millions in a year, find the way into every cabin and workhouse as messengers of life to the despairing. Those poor people, once started on their travels, encounter numerous perils before reaching their destination. As soon as a party of emigrants arrives in Liverpool, they are beset by a tribe of people, both male and female, who are known by the name of "man-catchers" and "runners." The business of these people is, in common parlance, to "fleece" the emigrant, and to draw from his pocket, by fair means or by foul, as much of his cash as he can be persuaded, inveigled, or bullied into parting with. The first division of the man-catching fraternity are those who trade in commissions

on the passage money, and call themselves the "runners" or agents of the passenger brokers. The business of the passenger broker is a legitimate and necessary one. Under the passenger act of the 12th and 13th Victoria cap. 3, the licenses of all the passenger brokers expired on the 1st of February, 1850, subject to renewal after their being approved of by the government emigration agent, and to their entering into bonds, with two sureties, in the sum of $1,000, for the due fulfilment of all the requirements of the act of Parliament relating to the comfort and security of emigrants. The passenger brokers at Liverpool, in common with the unwary and unsuspecting emigrants, have suffered greatly from the malpractices of the "runners," who pretend to be their agents. These man-catchers procure whatever sums they can from emigrants as passage money—perhaps $25 or $30, or even more—and pay as little as they can to the passenger broker, whose business they thus assume—often as little as £3, or £3 5s. In addition to these large and knavish profits, they demand a commission of seven and a half per cent. from the passenger broker, and they have been often known to obtain and enforce this commission, although their whole concern in the matter may have been to watch the number of emigrants going into or coming out of the brokery office, and to put in a claim for having brought or "caught" them.

To form an idea of the sums paid in any one year as commission to the man-catchers, in the item of passage money, we have but to take the total steerage emigration of that year and multiply it by £3 10s., or seventeen dollars—the average amount of passage money—and calculate what a per-centage of seven and a half per cent. would amount to. The total steerage emigration of 1859 was one hundred and forty-six thousand one hundred and sixty-two souls, which, at seventeen dollars a head, would amount to no less than two million four hundred and eighty-four thousand seven hundred and fifty-four dollars, on which, taking the commission at the low rate of six per cent., they draw one hundred and forty-nine thousand and forty dollars, which is generally stated to be about the sum actually paid to this particular class of people, on the average of the last three years, by the passenger-brokers of Liverpool. But these are not the only class of the man-catching fraternity, nor do they confine their operations to an exorbitant profit upon passage money. The man-catchers keep lodging-houses for emigrants—wretched cellars and rooms, destitute of comfort and convenience, in which they cram them as thickly as the place can hold. The extra profits they draw from this source cannot be inferior in amount to their previously mentioned gains, and the cherished hoards of the poor pay a large per-centage to their unscrupulous rapacity.

In addition to this trade, some of them deal in the various articles composing the outfit of emigrants, such as bedding, clothes, food, cooking utensils, and the nick-nacks of all kinds which they can pursuade them to purchase. Some of the store-keepers in this line of business pay their "runners" or "man-catchers" as much as ten per cent. commission on the purchases effected by the emigrants, from which the reader may form some estimate of the enormous plunder that must be drained from the poor ignorant people. As every emigrant must provide his own bedding, the sale of mattresses, blankets, and counterpanes, enters largely into this trade. After the bedding is provided, the man-catchers, who are principally Irishmen themselves, and know both the strength and weakness of the Irish character, fasten upon their countrymen—many of whom, poor and miserable as they look, have sovereigns securely stitched amid the patches of their tattered garments—and persuade them into the purchase of various articles, both useful and useless. Among these may be mentioned clothes of all kinds—shirts, trowsers, waistcoats, shawls, petticoats, south-westers, caps, boots and shoes, slippers, cooking utensils, cans for the daily allowance of water, and tins to hold their meal, rice, and sugar. Provisions, such as bacon, herrings, salt beef, and other articles not found them on board, and luxuries, in which whiskey and tobacco are generally included, come next on the list, after reiterated assurances from the man-catchers that no emigrant will be taken on board without them. These being provided, and an Irishman being easily squeezeable when a friend and a countryman is the man-catcher who has him in hand, and when he fears that his passage-money will be lost for non-compliance with the regulations, his attention is next directed to such articles as pocket-mirrors, razors, bowie-knives, pistols, telescopes, etc.

The stranger in Liverpool, who takes a walk in the immediate vicinity of the Water-

loo Dock, whence the greater number of emigrant vessels take their departure, will see a profuse display of the various articles upon which the man-catcher makes his gains—articles generally of the most inferior quality, and sold at the most extravagant and ridiculous prices. The man-catching business, in all its various departments, has been reduced to a regular system, and no London sharper can be more sharp than the Liverpool runners. Perhaps the most complicated and ingenious trick is the following: When a steam-vessel laden with emigrants leaves an Irish port for Liverpool, one of the Liverpool fraternity, dressed up as a raw Irishman, with the usual long-tailed, ragged, and patched gray frieze coat, the battered and napless hat, the dirty unbuttoned knee-breeches, the black stockings, the shillelah, and the short pipe, takes his place among them, and pretends to be an emigrant. Before the vessel arrives at Liverpool he manages to make acquaintance with the greater portion of them, learns the parish they came from, and the names of the relatives whom they have left behind, not forgetting those of the parish priest and the principal people of the neighborhood. He also ascertains the names of the friends in America whom they are going to join. He tells them of the roguery of Liverpool, and warns them against thieves and man-catchers, bidding them take especial care of their money. On arriving at the quay, in Liverpool, he jumps ashore among the first, where a gang of his co-partners are waiting to receive him. He speedily communicates to them all the information he has gained, and the poor people on stepping ashore are beset by affectionate inquiries about their friends in Ireland, and that good old man the parish priest. They imagine that they have fortunately dropped among old acquaintances, and their friend of the steamboat takes care to inform them that he is not going to be "done" by the man-catchers, but will lodge while at Liverpool at such and such a place, which he recommends. They cannot imagine that men who know all about the priest and their friends and relatives can mean them any harm, and numbers of them are usually led off in triumph to the most wretched but most expensive lodging-houses. Once in the power of the man-catchers, a regular siege of their pockets is made, and the poor emigrant is victimized in a thousand ways for his passage money, for his clothes and utensils, and for his food. Even after they have drained him as dry as they can, they are loth to part with him entirely, and they write out per next steamer a full, true, and particular account of him—his parish, his relations, his priest, and his estimated stock of money—to a similar gang in New York. Paddy—simple fellow—arrives in New York in due time, and is greeted on landing by the same affectionate inquiries. If his eyes have not been opened by woeful experience, he thinks once more that he has fallen among friends, and is led off by the "smart" man-catchers of the New York gang, to be robbed of the last farthing that he can be persuaded to part with; and he is possibly induced to spend the savings of years in the purchase of land, supposed to be in the far west, but having no other existence but such as paper and lies can give it.

It must not be supposed, from the statements in reference to the rogueries practised by runners and man-catchers upon the simple, emigrants themselves do not occasionally endeavor to commit frauds, both upon each other and upon the owners and captains of ships. The Irish emigrant, with the passion for hoarding which is so common among his countrymen, often hides money in his rags, and tells a piteous tale of utter destitution, in order to get a passage at a cheaper rate. The shameless beggary, which is perhaps the greatest vice of the lower classes of Irish, does not always forsake them, even when they have determined to bid farewell to the old country; and I have several times been accosted by men and women, on board emigrant ships in dock, and asked for contributions to help them when they got to New York. "Sure, yer honor, and may the Lord spare you to a long life; I've paid my last farden for my passage," said a sturdy Irish woman, with a child in her arms, when accosted on the quarter-deck of a fine ship, in the Waterloo Dock, "and when I get to New York I shall have to beg in the strates, unless yer honor will take pity on me." On being asked to show me her ticket, she said her husband had it; and her husband—a wretched-looking old man—making his appearance and repeating the same story, was pressed to show the document. He did so at last, when it was apparent that he had paid upwards of seventeen pounds—eighty-two dollars and twenty-five cents—for the passage of himself and wife and his family of five children. "And do you mean to say that you have no money left?" was inquired

of him. "Not one blessed penny," said the man. "No, nor a fardin," said the woman, "and God knows what'll become of us." "Do you know nobody in New York?" "Not a living sowle, yer honor." "Have you no luggage?" "Not a stick or a stitch, but the clothes we wear." As the good ship was detained two days beyond her advertised time of sailing, all the emigrants, as usual, had liberty to pass to and from the ship to the streets, as caprice or convenience dictated. On the following day, this sturdy woman and her husband were seen entering the Waterloo Dock gates with a donkey-cart, tolerably well piled with boxes, bedding, and cooking utensils. When they were down in the steerage, and she was asked whether that was her luggage, she replied it was. "You said yesterday, however, when you were begging, that you had no luggage." "Sure, it's a hard world, yer honor, and we're poor people—God help us."

An incident of a kind not very dissimilar occurred on board of another American liner. When the passenger roll was called over, it was found that one man, from the county of Tipperary, had only paid an instalment upon his passage money, and that the sum of $6 each for three persons, or $18, was still due from him. On being called upon to pay the difference, he asserted vehemently that he had been told in the broker's office that there was no more to pay, and that to ask him for more was to attempt a robbery. The clerk insisted upon the money, and showed him the tickets of other passengers to prove the correctness of the charge. The man then changed his tone, and declared that he had not a single farthing left in the world, and that it was quite impossible he could pay any more. "Then you and your family will be put on shore," said the clerk, "and lose the money you have already paid." The intending emigrant swore lustily at the injustice, and declared that if put on shore he would "get an act of Parliament" to put an end to such a system of robbery. The clerk, however, was obdurate, and the man disappeared, muttering as he went that he would have his "act of Parliament to punish the broker, the clerk, and the captain." He returned in a few minutes from below, and, without saying a word of what had happened, and looking as unconcerned as a stranger, coolly presented a £5 note, or $24.25, and asked for his change. Such is a specimen of the rogueries attempted by those who have money. Those who really have none at all, or who possibly have not sufficient to pay their passage, resort to other schemes for crossing the Atlantic at a reduced rate, or free of charge altogether, and "stow away." This is a practice which is carried on to a great and increasing extent.

After encountering these perils of poverty and cheating, the crowd becomes finally located on board of ship, and assigned their quarters for the voyage. It is a strange place for the new-comers, and their admiration of the new life they have entered upon begins with the first day's issue of regulation food. The experience of most of them in the edible way, has hitherto been confined to "murphys" or, at most, Indian meal, which they heartily detest as "starvation porridge." They now come to the allowances, as above, handed them by law. The meal, the tea, the rice, the sugar, and molasses prove frequently a puzzler—tea in particular—and it is not unfrequently the case that a brawny Pat, who could do a good turn at Donnybrook fair, but whose knowledge of drinkables is confined to whisky, will, after gravely surveying the tea for a while, deliberately fill his pipe with a portion, and smoke it with much satisfaction. Others, with more expansive ideas, will at times mix the whole in a mass, and boil it into a thick soup or pudding, well specked with the expanded tea leaves. Information comes with experience, however, and the first serious experience is sea-sickness, which utterly prostrates them, mind and body, aggravating every dirty habit they may have formed. Then is exerted the utmost power of the captain to enforce cleanliness; he usually selects a dozen or two of the more intelligent, and investing them with authority, a general turn-out, and a thorough cleaning every morning, and in all weathers, is compelled.

By the rigid observance of this rule, much of the former sickness and mortality has been avoided. A voyage of some thirty days usually brings the human freight within sight of New York harbor. It almost invariably occurs that in the first delight of arrival every utensil and article of bedding is pitched overboard. No matter how poor are the people, or how hardly the things may have been come by, over they go; and cleaning for the landing takes place. How full of anxieties is that landing!

CHAPTER III.

LANDING IN NEW-YORK—FUTURE HOMES.

THE Castle Garden, at New York, is allotted for the reception of the passengers under the Commission of Emigration, which was organized by law in 1847, and which charges a tax of two dollars per head on each immigrant, applying the proceeds to the support of the needy and destitute among them. The operations of this commission have become very extensive. It has charge of the Quarantine. Since its organization it has raised large hospitals on Ward's Island, where the sick are cared for. They are also sent to the Marine Hospital and the New York Hospital, and they reimburse the towns and counties of the state for the charges they incur for support of poor aliens, and advance money to immigrants on pledge of baggage, without interest. In the year 1859 $2,180 was so advanced to 162 families, and $2,031 was paid back. The operations of the commission in 1859 were:—

Receipts for commutation		$159,112
Other receipts		23,454
Total receipts		182,566
Balance in hand, January, 1859		5,656
		$188,222
Office	$16,486	
Hospitals	6,380	
Counties for support	23,555	
Castle Garden	34,727	
Agent at Rochester	1,087	
" Albany	2,160	
" Buffalo	2,601	
Ward's Island	54,890	
Marine Hospital	18,360	
Floating "	4,647	
Forwarding Immigrants, &c., &c.	32,130	
Incidental	721	
		$199,875

This account gives a general idea of the operations of the commission. The whole amount disbursed by the commission, May 5, 1847, to Jan. 1, 1860, was $834,786. The proportion who go into hospital appears to be about six per cent. of the arrivals.

A large majority of those who here land have their friends awaiting them to guide them to their future homes. Numbers have to seek their way amid numberless perils. But nearly all these have come provided with instructions more or less minute, derived from the numerous agents in Europe of the American land companies, who hold out inducements to settlers. The Germans are mostly inclined to agriculture, and they soon find their way, by the emigrant trains of the great trunk lines of railroads. Those lines have all exerted themselves to profit by the movement.

The following table, from official sources, gives the number of Germans and British under each head, and also the aggregate of all the aliens arrived since the returns have been regularly kept. Some of the passengers report themselves from Great Britain, without stating which portion. These are under the head "Great Britain." Thus, the totals from Great Britain to 1859, is 2,672,500, of which, 1,417,830 are reported from Great Britain, 289,664 from England, 918,729 from Ireland, 46,277 from Scotland.

NUMBER OF PASSENGERS THAT ARRIVED IN EACH YEAR IN THE UNITED STATES FROM ENGLAND, IRELAND, SCOTLAND, GREAT BRITAIN, AND GERMANY, WITH THE TOTAL FROM ALL COUNTRIES.

	England.	Ireland.	Scotland.	Gt. Britain.	Germany.	Switzerland.	Prussia.	Total.
1820,	1,782	1,725	268	2,249	948	31	20	8,385
1821,	1,036	1,518	293	1,881	365	93	18	9,127
1822,	856	1,346	198	1,088	139	110	9	6,911
1823,	851	1,051	180	926	179	47	4	6,354
1824,	713	1,575	257	1,064	224	253	6	7,912
1825,	1,002	4,157	113	1,711	448	166	2	10,199
1826,	1,459	3,333	230	2,705	495	245	16	10,837
1827,	2,521	3,282	460	7,689	435	297	7	18,875
1828,	2,735	5,266	1,041	8,798	1,806	1,592	45	27,382
1829,	2,149	3,106	111	5,228	582	314	15	22,520
1830,	733	747	29	2,365	1,972	109	4	23,322
1831,	251	1,647	226	6,123	2,395	63	18	22,633
1832,	944	5,120	158	11,545	10,168	129	26	53,179
1833,	2,966	4,511	1,921	4,166	6,823	634	155	58,640
1834,	1,129	6,772	110	26,953	17,654	1,389	32	65,365
1835,	468	5,148	63	24,218	8,245	548	66	45,374
1836,	420	2,152	106	41,006	20,139	445	568	76,242
1837,	896	737	14	39,079	23,036	383	704	79,340
1838,	157	1,225	48	16,635	11,369	123	314	38,714
1839,	62	1,199	.	32,973	19,794	607	1,234	68,069
1840,	318	677	21	41,027	88,581	500	1,123	84,066
1841,	147	3,291	35	50,487	13,727	751	1,564	80,289

	England.	Ireland.	Scotland.	Gt. Britain.	Germany.	Switzerland.	Prussia.	Total.
1842,	1,743	4,844	24	66,736	18,287	483	2,083	104,565
1843,	3,517	1,173	41	23,369	11,432	553	3,009	52,496
1844,	1,357	5,491	23	40,972	19,226	839	1,505	78,615
1845,	1,710	8,641	368	53,312	33,138	471	1,217	114,371
1846,	2,854	12,949	305	57,824	57,010	698	551	154,416
1847,	3,476	29,640	337	95,385	73,444	192	837	234,968
1848,	4,445	24,802	659	118,277	58,014	319	451	226,527
1849,	6,036	31,321	1,060	175,841	60,062	13	173	297,024
1850,	6,797	40,180	860	167,242	78,137	375	759	369,980
1851,	5,306	55,874	966	210,594	71,322	427	1,160	379,466
1852,	30,007	159,548	8,148	2,544	143,575	2,788	2,343	371,603
1853,	28,867	162,649	6,006	2,703	140,653	2,748	1,293	368,645
1854,	48,901	101,606	4,605	5,141	206,054	2,953	8,955	427,883
1855,	38,871	49,627	5,275	1,176	66,219	4,433	5,699	200,877
1856,	25,904	54,349	3,297	15,457	63,807	1,780	7,221	200,436
1857,	27,804	54,361	4,182	26,493	83,798	2,080	7,983	251,306
1858,	14,638	26,873	1,946	12,372	42,291	1,056	3,019	123,126
1859,	13,826	35,216	2,293	10,045	39,315	833	2,469	121,282
	289,654	918,729	46,277	1,415,581	1,434,298	31,870	56,667	4,908,321

The returns give 1,435,298 Germans, mostly from the valley of the Rhine, a large portion of whom have arrived since the taking of the census of 1850. If we take the numbers of persons who had arrived from each country up to 1850, and compare them with the numbers reported by that census as living in the Union, we may be satisfied in how far two distinct official accounts correct each other.

STATEMENT OF THE NUMBER OF ALIENS ARRIVED IN THE UNITED STATES UP TO 1850, AND THE NUMBER OF EACH NATION RESIDENT IN THE UNION PER CENSUS OF 1850.

	Arrived 1820 to 1850.	Resident in 1850.	Excess of arrivals.
England	55,530	278,675	
Ireland	218,626	961,719	
Scotland	9,559	70,550	
Wales	1,616	29,868	
Great Britain	1,127,440		
Total Gt. Britain	1,412,771	1,340,812	71,949
Germany	577,264	573,225	
France	131,714	54,069	77,645
Spain	6,950	3,113	3,837
Portugal	1,550	1,274	276
Belgium	5,724	1,313	3,811
Holland	10,790	9,848	942
Turkey	87	106	
Italy	4,675	3,645	1,030
Austria		946	
Switzerland	12,772	13,358	
Russia	917	1,414	
Norway & Sweden	15,198	12,678 / 3,559	
Denmark	1,791	1,838	
Prussia	16,525	10,549	5,976
Sardinia	360	34	326
Greece	85	86	
China	386	758	
Asia	145	377	
Africa	1,049	551	
British America	57,833	147,711	
Mexico	14,689	13,317	1,371
Central America	519	141	378
South America	4,977	1,543	3,434
West Indies	29,827	5,772	24,055
Sandwich Isles	36	588	
Other	1,171	8,214	
Total	2,309,213	2,210,839	

These figures indicate the true currents of migration, as distinct from visitors. In thirty years there came from the British Islands 71,940 persons more than remained here. These represent those who returned home and those who died. Although a large number were reported as from Great Britain, their nativities, as reported by the census, inform us more than two-thirds were Irish. The French who arrived, it appears, did not remain in a proportion larger than forty per cent. The Belgians and Dutch returned to some extent. It is the case with these nations mentioned that the proportion of females is small, showing the character of the passengers to be more that of visitors than settlers. With some other nationalities more are reported resident than arrived. This may arise from the desire on the part of many, on arrival, to conceal their origin, because of some claims of the government upon them for military duty, such as we have seen exemplified in the correspondence of General Cass upon that point. In the case of British America, great numbers came over the lines not reported as emigrants in ships. With the West Indies, there are numbers come north in the summer season who return to their own homes in the winter. The aggregate results of arrivals and residences correspond pretty well.

Having traced these people from their various homes in Europe, and appreciated the motives that led them to migrate, and the difficulties that they encountered in so doing, we may now follow them to their final homes on this continent, as far as official returns permit. The French and English seem to cling to the sea coast, while the Germans push west into agricultural states, Ohio getting a large share of the whole. The "total" column includes all others, as well as English and German:—

LOCATION OF LEADING EMIGRANTS IN THE UNITED STATES.

	England.	Ireland.	Germany.	Switzerl'nd.	Prussia.	Total foreign.
Maine	1,949	13,871	290	11	27	31,456
New Hampshire	1,469	8,811	147	9	2	13,571
Vermont	1,546	15,377	218	2	6	32,831
Massachusetts	16,685	115,917	4,319	72	98	160,909
Rhode Island	4,490	15,944	230	8	5	23,111
Connecticut	5,091	26,689	1,671	55	42	37,473
New York	84,820	343,111	118,398	1,850	2,211	651,801
New Jersey	11,377	31,092	10,686	204	57	58,364
Pennsylvania	38,048	151,723	78,592	914	413	294,871
Delaware	952	3,513	343	22	28	5,211
Maryland	3,467	19,557	26,936	68	188	53,288
District of Columbia	682	2,373	1,404	36	11	4,967
Virginia	2,998	11,643	5,511	83	36	22,394
North Carolina	394	567	344	3	19	2,524
South Carolina	921	4,051	2,180	18	44	8,662
Georgia	679	3,202	947	38	25	5,907
Florida	300	878	307	7	17	2,757
Alabama	941	3,639	1,068	113	45	7,638
Mississippi	593	1,928	1,064	41	71	4,958
Louisiana	3,550	24,266	17,507	723	380	66,413
Texas	1,002	1,403	8,191	134	75	16,774
Arkansas	196	514	516	12	24	1,628
Tennessee	706	2,640	1,168	266	32	5,740
Kentucky	2 805	9,466	13,607	279	198	29,189
Ohio	25,660	51,562	111,257	3,291	765	218,512
Michigan	10,620	13,430	10,070	118	190	54,852
Indiana	5,550	12,787	28,584	724	740	54,426
Illinois	18,628	27,786	38,160	1,635	286	110,593
Missouri	5,379	14,734	44,352	984	697	72,474
Iowa	3,785	4,885	7,152	175	88	21,232
Wisconsin	18,952	21,043	34,519	1,244	3,545	106,695
California	3,050	2,452	2,926	177	158	22,358
TERRITORIES.						
Minnesota	84	271	141	22	5	2,048
Oregon	207	196	155	8	1	1,159
Utah	1,056	106	50	1	6	1,990
New Mexico	43	292	215	11	14	2,063
Total	278,675	961,719	573,225	13,358	10,549	2,210,839

In this manner were distributed in 1850 among the several states those of our citizens who were born abroad. In the aggregate, Wisconsin had the largest proportion of foreign citizens. Out of a population of 305,391, there were 106,691, or more than one out of three, born abroad. Of that number, nearly 40,000 were Germans. Next to Wisconsin, New York had the largest number of foreigners, these forming more than 1 out of 5 of the whole number. The New York state census of 1855 also reported the nativities, and these compare with 1850 as follows:

	English.	Irish.	Germans.	Total For'gn.	Native.
1850,	84,820	343,111	122,459	651,801	2,445,593
1855,	102,286	469,753	218,997	922,019	2,528,44[illegible]
Increase	17,466	126,642	96,538	270,218	82,851

The foreign element, it appears, increased in these five years 270,208, while the native born only increased 82,851, showing how greatly the enterprise of those years sent people to the west. The natural increase of the white population in the United States is three per cent. per annum. Thus, on the 2,445,593 native whites in New York in 1850, the excess of births over deaths in one year would be 73,367; and for five years, to 1855, it would be 226,835 persons. But the census showed an increase of only 82,851, consequently 143,984 of the native population must have emigrated from the state during that period. Their places were more than supplied by the

emigrants. The same movement is apparent in all the northern states. The number of persons born in the northern states and living at the time of the census, was 8,370,089. Of these, only 6,941,510 were living where they were born; the remainder, 1,428,579, were living in other states, south and west. But there were also living in the northern states, at the date of the census, 1,292,241 persons who were born abroad. These foreigners were mostly Irish—factory operatives, domestics, and artisans. It appears, then, that business enterprise had drawn 1,428,579 northiern born men into other states, and their places had been supplied by 1,292,241 emigrants from abroad. This was up to 1850, and since then, as we have seen in the case of New York, the movement has been much more rapid; to how great an extent, the forthcoming census will show.

The amount of money or capital drawn from Europe by the emigrants is a question of much importance. The cost of preparation for the voyage in Europe, the cost of the passage, and the expenses incurred after arriving until the new home is finally reached, cannot, together, fall short of one hundred dollars each; and many have a small capital, in addition, with which to begin the world. The sums transported are often much larger. In 1854 the migration from the Palatinate, as stated in a Bremen report, was 8,908, and they carried $1,024,000. The reports of the New York commissioners of emigration, as the result of their investigation, show that the average of money brought is very near one hundred dollars per head—an amount which becomes formidable when taken in connection with the aggregate numbers arriving. This is exhibited in the following summary of arrivals:—

	Whole No. of Arrivals.	Number of Aliens.	Sums at $100 per head.
Ten years to Sept. 30, 1829,	151,636	128,502	12,850,200
" " 1839,	572,716	538,381	53,838,100
" " 1849,	1,479,478	1,427,337	142,733,700
" Dec. 31, 1853,	3,075,900	2,814,554	281,455,400
Total arrived.....	5,279,730	4,908,774	$490,877,400

This is an immense sum, and poured forth even in small streams, has had an important effect upon the prosperity of the country at large, independent of the larger sums invested in land, stock, and utensils. On the other hand, very considerable sums are sent out of the country in aid of the emigrants, by their friends here, who have earned the money at service and otherwise. On this point, information has from time to time been gathered, of the houses through which remittances are made. These remittances are mostly small drafts, purchased in New York, for sums varying from five to one hundred dollars. The latter sum is seldom reached, however. The remittances of five of these houses, in one year, were as follows:—

			Average amount.
House A, number of drafts..	1,934	$32,125	$16
" B, " "	6,198	123,290	17½
" C, " "	13,425	266,595	18¾
" D, " "	18,175	363,140	18
" E, " "	40,542	810,885	18½
Total 5 houses 1 year..	79,361	$1,595,755	

These do not include the large banking-houses, of which there are no returns, but it is stated the Baring Brothers alone send $2,500,000. The British emigrant commissioners reported $2,160,000 so sent in 1848; $2,589,000 in 1849; $4,871,204 in 1850; $5,172,010 in 1851; $6,960,107 in 1852, and with the prosperous years during the great rail expenditures, up to 1857, large sums were remitted. It is to be remembered, however, that the sums so remitted come back mostly to American ship owners for passage money, so that, in fact, it does not all leave the country. In the same manner a good deal of the United States gold coin exported to Havre, Bremen, etc., is purchased there by emigrants in exchange for their native coin, and disbursed here on the arrival of the passengers. It results, then, that Europe sustained in the last ten years a drain of 2,814,554 souls, and at least $281,000,000 of money, which went to enrich the United States. This, without taking into account the productive value of the people after they arrived.

The legal rights of the emigrants, after they become naturalized, are the same in all respects as those of the native born citizens, with the single exception that they are not eligible to the office of president or vice-president of the United States. No law can be passed to abridge the freedom of their speech, or the free exercise of their religion, whatever that may be—even the enjoyment of Mormonism has been an attraction to some. Their right to hold real estate is perfect, as is the security afforded to persons, property, and papers, and they may be elected, or may elect to any office except those named.

Another very interesting feature of the passenger movement, although not strictly embraced within the emigration, is the num-

ber of United States citizens who annually arrive from abroad. There is no record of the number who go abroad each year, nor of the sums they expend in so doing; nevertheless, these are very considerable, and form an important element in the exchanges of the country. As a guide to the numbers who go, the returns of those who arrive each year become very interesting. These, distinguishing males and females, have been as follows:—

NUMBER OF NATIVE CITIZENS ARRIVED EACH YEAR FROM ABROAD.

	Males.	Females.	Not stated.	Total.
1820,	1,576	287	63	1,926
1821,	2,215	302	..	2,517
1822,	1,502	136	..	1,638
1823,	1,715	196	..	1,911
1824,	1,547	168	..	1,715
1825,	2,289	370	..	2,659
1826,	2,516	555	..	3,071
1827,	2,362	540	..	2,902
1828,	2,185	617	..	2,802
1829,	1,635	358	..	1,993
1830,	1,075	440	..	1,515
1831,	1,008	239	..	1,247
1832,	1,003	169	..	1,172
1833,	1,002	283	..	1,285
1834,	1,934	640	9	2,583
1835,	2,556	764	22	3,342
1836,	3,594	1,136	..	4,730
1837,	4,566	1,053	..	5,629
1838,	5,030	1,215	..	6,245
1839,	5,268	1,329	..	6,597
1840,	6,115	2,026	..	8,141
1841,	5,733	1,783	..	7,516
1842,	4,847	1,568	..	6,415
1843,	3,103	930	..	4,033
1844,	4,466	1,683	..	6,149
1845,	4,164	1,196	165	5,525
1846,	3,197	1,036	..	4,233
1847,	3,081	1,408	25	4,514
1848,	2,222	734	..	2,956
1849,	2,024	635	..	2,659
1850,	9,863	1,059	..	10,926
1851,	27,836	1,526	..	29,362
1852,	23,262	2,478	..	25,740
1853,	28,774	3,563	..	32,337
1854,	28,710	3,931	..	32,641
1855,	24,874	4,716	..	29,599
1856,	20,058	4,002	..	24,060
1857,	16,701	3,974	..	20,676
1858,	17,291	4,489	..	21,780
1859,	27,041	7,186	..	34,227
	309,940	60,710	284	370,968

At the era of the gold discoveries in 1849, a sudden movement in American travel took place, it appears. In the ten years ending with 1849, 51,951 persons arrived home; of these one-fourth were females. In the ten years ending with 1859, 261,138 Americans arrived home. The amount of money spent by these persons abroad cannot be ascertained with precision, but it is known that the passage out and home, with a three months' expense, cannot be done inside of $600, at which rate the amount expended would be $156,682,800 for the ten years, or $15,000,000 per annum. The probability is that it is three times that amount; the passage money alone would reach $52,227,000. This constitutes a very heavy drain upon the national resources, although the money paid for passages is mostly to American interests; as a whole it is doubtful whether the financial balance arising from migration is in favor of the country. The numbers of former emigrants who return home with accumulated means, added to the sums expended abroad by Americans, will probably, at least, cancel the amounts actually brought into the country by emigrants. But the vast amount of productive skill and labor that is brought into the country, and applied to the vast waste of land, develops more capital in a ratio which astonishes the observer. The number of persons who arrive in the United States in a single year equals the population of a whole state. Thus the numbers that arrived in 1857 were 427,883; the total white population of the state of Alabama was, in 1850, 428,779. The emigration during the ten years to 1859 was 2,814,554 persons, and the total population of the whole six New England states, in 1850, was 2,728,116 souls; thus 86,438 more people came into the country to settle in the last ten years than were living in the six New England states at the date of the last census. This course of population, by which the old citizens push on to the valley of the Mississippi, leaving their places to be filled by Europeans, is changing the character of the Atlantic states.

SOCIAL AND DOMESTIC LIFE.

INTRODUCTORY.

THREE quarters of a century ago, there were in the whole United States only about as many people as there are now in the state of New York; and now we have grown from less than four millions to thirty millions—having increased nearly eight-fold.

These large numbers will indistinctly represent the general progress of the nation; and the average social prosperity of each citizen has increased in a ratio materially larger. The actual amount of this increase in intelligence, wealth, and comfort, cannot be set down in figures, but will be understood as well as the case will permit, from an enumeration of details of improvements in social and domestic life.

There were sufficient reasons for a somewhat uncommonly low average of comfort at the end of the Revolution. The seven years' war had, of course, almost destroyed all industry, except farming and a few indispensable manufactures and trades. It had also drained all the specie out of the country, or frightened it into secret hoards; in consequence of which the currency was entirely disorganized. Government credit was at such a low ebb, that the bills of the United States (known as "continental money") would not purchase even such articles of comfort or luxury as existed, except at enormous nominal rates; nor was the paper money of the separate states in much better reputation. Thus, a hundred dollars in these depreciated bills was paid for a mug of cider; five hundred dollars for a bowl of punch; a thousand dollars for a pair of shoes; twenty-seven thousand dollars for an ordinary horse; and "part of an old shirt" was set in an inventory at fifteen dollars. The worthlessness of this money rendered it necessary to make payments, to a great extent, in barter—a mode of trading which always keeps the average of comfort and luxury down at a standard little above that of the better class of savages.

But even if this paper currency had been worth its face, or if specie had been plenty, it would have been possible to buy only a small share of comforts or luxuries compared with those now attainable, for the plain reason that they did not exist.

Beginning at this low period of average prosperity, we shall now rapidly sketch the progress of the country, up to the present time, under the general heads of

1. Domestic Architecture.
2. Furniture.
3. Food.
4. Dress.
5. Mental culture, intercourse, etc.

CHAPTER I.

DOMESTIC ARCHITECTURE.

Eighty years ago, houses were much more evenly distributed over the country than is now the case. There has ever since been a continual tendency to draw together into towns; and this tendency has been much assisted by the increased ease of travelling and transportation. At that time, therefore, there was much less difference between a country house and a city house than at present.

In the older parts of the northern states, the houses then built were often of the style called "lean-to," or "linter;" that is, with one side of the roof carried down so far as to cover an additional tier of rooms on the ground floor, or a wide shed. Another common style, rather later in use, was the "gambril roofed," where the roof rose at a very steep pitch from the eaves, about half the length of the rafters, and then fell in to the ridge-pole at a much flatter angle. This gave a very roomy garret. Dormer windows were very common, to light rooms finished off in the garrets.

Timber was plenty, and houses were built

almost exclusively of wood, and often with beams and rafters of dimensions that would now seem truly enormous. Brick was comparatively little used, until lumber grew scarcer in the older parts of the country, and "brick machines," first invented by Kinsley a little before 1800, had rendered the production of brick more rapid and cheaper than could be afforded by hand labor. Stone was scarcely used at all, except by a very few wealthy persons. Sometimes the spaces between the timbers of a frame house were filled in with brick, so as to make a sort of brick body to the house, with wooden bones, and with the clapboards put on over these.

A beam was very often left running across the ceiling of a room, six or eight inches below the plaster, and was a convenient place for driving nails or pegs on which to hang dried apples, seed-corn, peppers, hams, baskets, rope, etc., etc. In like manner the uprights often projected into the corner of the room, giving it a kind of coarse cornice. The centre of the house was usually occupied by the chimney stack—an immense pile of brick or stone, sometimes occupying almost a quarter of the ground plan. In the different sides of this huge mass opened the great old-fashioned fire-places, in many of which one could sit in the corner while the fire burned, and see the sky through the chimney-top. Half a cord of wood might burn at once in some of these great fire-places, and yet, in the bitter cold of a northern winter, water would freeze at the other side of the room. This was by reason of the thinness of the walls, the imperfect fitting of doors and windows, and above all, the great proportion of heat that went off up chimney, and of cold that came down. Hinged to staples at the chimney-back was a crane, with its pot-hooks and hangers, or trammels, to accommodate the machinery of the cook. At one side of the fire-place was the oven—a cave in the masonry of the chimney-stack—and, usually, with an ash-hole underneath it. A great shovel, or "slice," with a handle five or six feet long, and a big pair of tongs to match, were for oven use; and to heat this affair thoroughly enough to bake bread, usually occupied an hour or an hour and a half, and consumed two or three good armfuls of dry wood.

Houses were commonly low "between joints," to economize heat. Roofs were shingled, with split shingles; the sawed shingles being little used until a little after 1800, from which time many patents for shingle sawing were taken out. A machine for getting out shingles was patented, however, as early as 1797. Slate roofs have never been much used, and tiles scarcely at all. Cypress wood is used for shingles at the south, instead of pine; exposure to the weather turns it to a quite distinct, but disagreeable black. Sheet tin has been quite extensively used for roofing during the last quarter of a century, being laid upon tongued and grooved boards; but most of such roofs leak vexatiously, from the alternate expansion or contraction of the tin from heat and cold. Since about 1840, quite a number of modes have been invented for covering roofs with oiled cloth, asphalt, mineral paints, etc., etc.; but no roof is better than a well made shingle roof.

A quite recent invention in domestic architecture is the plan of building what are called "gravel walls," by moulding gravel and loose stone with mortar into a kind of concrete wall on the spot, lifting up the moulding cases when the contents are firmly set, and moulding another section. This results in a house which may be said to be of one stone, for if the materials are good and well put together, they harden into an artificial breccia. This plan has not, however, been sufficiently proved; and a wrong choice of sand, or gravel, or lime might after a while cause the crumbling and ruin of the whole fabric.

Walls were usually finished inside with whitewash, paper, or paint; the use of stucco, or "hard finish," being quite rare until a late period. All house iron-work and trimmings of a better kind were imported from England, until within the present century. Wrought nails were used; cut nails having been invented, and their manufacture variously perfected by several Americans, from about 1791, when the earliest patent on the subject was issued, down to the present time. Jacob Perkins, of Newburyport, and Byington, of Connecticut, were two of the most prominent inventors in this line. Such latches, hinges, etc., as were then made in this country, were wrought iron, and clumsy and inconvenient. All such trimmings are, however, now manufactured to great perfection in our own workshops. Among the improvements of the last forty years in house trimmings, a very convenient one is the introduction of balance weights running over

pullies, to facilitate opening and shutting windows. Before these were used, the practice was to use various kinds of catches, all of which made it necessary to lift the whole weight of the sash; and instead of which were often found merely a wooden button to turn under, and hold the sash open, or even nothing but a stick to hold it up.

The invention of the planing machine, first successfully introduced by William Woodworth in 1837, though many patents had preceded his, and of the circular saw, first patented by Cox, of Georgia, in 1795, were important improvements in dressing lumber, and cutting it; as the former could turn out boards smoothed, tongued and grooved, and fit for flooring, and the latter could cut thin work much more cheaply than a common saw movement. Another machine has been introduced within fifteen years, for boring auger holes, and others for cutting wooden mouldings, which save much time and labor in framing and in finishing respectively. During the last ten or twelve years, also, various new paints have been introduced, none of which, however, have entirely superseded the old-fashioned oil vehicle and ordinary mineral colors. Of these, the principal are preparations of zinc, to be used instead of lead, and also for a variety of browns and grays; and several "mineral paints," usually finely pulverized stone, which are recommended as good defences against fire.

The improvement of the last twenty years in architectural designs has been great. Up to that time, dwelling houses were built in the north most frequently on a plain parallelogram plan with the common ridge-pole roof. A style at that time quite frequently adopted for houses of a somewhat pretentious character was that of a Greek temple, usually with a row of pillars across one end. This absurd misapplication did not flourish long, and was succeeded by the Gothic cottage style; and this again, and with extensive and well-deserved success, by the very various and graceful modifications of the Italian villa style. In cities, where land is very expensive, a style called the "English basement house" is much used; with a front of brick, or stone, or both; a ground floor occupied by a library or dressing-room, and a dining-room; with the kitchen in the basement below, and the parlors and bedrooms on the floors above. This arrangement economizes land, but the great number of stories and stairs makes them very wearisome to the feeble frames of our American city housekeepers, unless they content themselves with sitting comfortably in the parlor, and letting Bridget govern, uncontrolled, in all the rest of the house. A modification of this house, known as the Boston style, has a front door sunk within a recess in the front, as a shelter from the weather.

A very common arrangement of old-fashioned houses was to set the house with the side toward the street, with the front door in the middle, opening into a little vestibule. From this the stairs passed up, often turning round three sides of the vestibule; and at each side a door led to two front rooms. These, often occupying all the ground floor of the two-story part, were parlors, or a parlor and a bed-room. Behind these, under the "lean-to" roof, was very probably one long room, used as kitchen, nursery, and sitting-room; for the parlor was used only for great occasions. The second floor was laid off as might be convenient.

The better houses of the southern states were built to suit the different demands of the climate—more airily, and usually with much piazza room, and not much provision for warmth. Early settlers in the south and west invariably put up log houses, whose chimneys were built outside against one end, of sticks laid in clay. A mode often used was to build two separate square rooms of logs, and then to throw one roof over both and the space between, thus securing an outdoor shelter. These log houses were floored with "puncheons," that is, small logs split once and hewed even. A standing table of puncheons, some three-legged stools, a rude bedstead, with a bed of leaves or corn-husks covered with buffalo-hide or bear-skins instead of sheet, blanket, and coverlet; a shelf, and a variety of pegs driven into the wall, completed almost the entire outside and inside of these rugged, but comfortable homes, the nurseries of so many brave and great men. In such houses were born and brought up Andrew Jackson, Henry Clay, and the numberless heroic Indian fighters and mighty hunters of the west. And such houses are still the homes of thousands of the bold pioneers who are advancing westward, carrying forward the limits of civilized society toward the Pacific ocean. As the newer states increase in population and wealth, the domestic architecture of the older ones is copied, and dwell-

ing houses of the same general character are now commonly used in city and country.

Among the chief improvements in domestic architecture are those which have been applied to modes of warming houses. The earliest improvement on the ancient fireplace was the Franklin stove, invented by the great philosopher whose name it bears, and which was in use before the revolutionary war. These were only shallow iron fireplaces, with a draft which could be modified by a sort of valve, and were used only for wood. Large box-stoves, also for wood, were the first means used for warming churches. Even these were not introduced until within the memory of many persons now living, and, as is well known, were violently resisted by the conservatives, who fought hard to retain the privilege of mortifying the flesh by freezing fingers and toes all day Sunday.

The introduction of anthracite coal was the next step in this department. This had been known for years to the hunters and trappers of the wild interior of Pennsylvania, as a black stone sometimes found on the mountains, but was not thought combustible, any more than granite.

Some successful attempts had, however, been made to burn anthracite; one by Dr. C. T. James, in 1804; and one by Judge Jesse Fell, of Wilkesbarre, who burned it in a grate, in 1808. This brought it gradually into use in that vicinity. In 1814, White & Hazard, iron-masters in Carbon county, bituminous coal becoming scarce, resolved to try anthracite in their rolling mill. They got a cart-load, at a dollar a bushel, and wasted it all in vain endeavors to kindle it. Procuring another load, they tried again; but after fruitless endeavors for a whole night, the hands shut the furnace door in despair and left the mill. Half an hour afterward, one of them came back after his jacket, and to his surprise found the furnace door red-hot, and the inside at a strong white heat. The discovery was made; and with the use of a similar let-alone policy in kindling, anthracite was afterward used in furnaces with entire success, an improvement in quality of product, and a large saving of expense.

Thus introduced, the use of the new fuel gradually spread, although so slowly that in 1820, three hundred and sixty-five tons completely stocked the Philadelphia market for a year. Many patents were now taken out for grates, blowers, cooking-stoves, parlor and hall stoves, ranges, and hot-air furnaces. R. Trexler, of Berks county, manufactured stoves for anthracite in 1815; and the earliest patent for furnaces seems to have been that of Thomas Gregg, of Connellsville, Pa., in 1814. Three or four years now brought the new fuel into extensive use, and from the three hundred and sixty-five tons, which was all that was mined in 1820, the amount had risen in 1849, in thirty years, to three millions and a quarter of tons, and has been continually increasing ever since.

Nott's stoves were early much used for warming houses with anthracite; Olmsted's stove and Bushnell's were in fashion next; the first invented by a college president, the second by a college professor, and the third by an eminent clergyman. It would be vain to enumerate the numberless patents and designs that have since been introduced. About 1836, Isaac Orr, a man of great inventive talent, patented the air-tight stove for wood, which was for a time so extensively used as to cause a sort of interregnum in the reign of anthracite, and which is yet frequently seen. Grates, long used in England to burn the bituminous coal there, were early adapted to anthracite, and their cheerful open appearance has kept them to some extent in vogue. Hot-air furnaces were also invented, as early, at least, as 1813; but various faults, from the too great fierceness and dryness of the heat, imperfect defence against fire, etc., rendered them on the whole quite unsatisfactory, until about 1840, when great improvements began to be made; and many of the furnaces now employed afford a bountiful supply of air, almost fresh from out-doors, and not too warm and dry for health.

Apparatuses have also been devised for heating buildings by systems of hot-water pipes, and by systems of steam pipes; of which the latter, especially in manufacturing establishments, offices, public rooms, etc., succeed very well, though the heat would sometimes be somewhat too slowly diffused for private residences.

Until within twenty years, scarcely any care had been given to the ventilation of any buildings, whether public or private. At earlier periods, an abundant circulation of air was secured by the open chimney, through which a strong current of warm air continually rushed up, taking, as has been

computed, at least nine-tenths of all the heat with it. With the introduction of stoves and furnaces, this ventilator was closed, and the air of warm rooms became unhealthily dry and hot, or vitiated by use, especially in schools, ball-rooms, court-rooms, public assemblies, etc. Many disorders were aggravated or made more common by this state of things; such as headaches, nervous affections, and lung complaints. Various plans of ventilation have been adopted to remedy these evils, but the principles of the science of pneumatics are even yet so imperfectly understood that no entirely satisfactory system of ventilation has yet been devised. The modes commonly used are, for large public buildings, such as churches, an opening at the ceiling, with a device outside for forming an upward current by the help of the wind; in private houses, openings at the sides of rooms, communicating indirectly with the external air; and where hot-air furnaces are used, a pipe supplying air from without, which is warmed by the furnace and passed on into the apartments. Stove-heat is, however, still not usually applied in such a manner as to promote health.

City residences are at present frequently furnished with two kinds of improvements rarely found elsewhere—gas and water.

The use of gas for lighting streets and houses was first invented by an Englishman named Murdoch, and tried at Redruth, in Cornwall, in 1792. It was first introduced in the city of New York by the old New York Gas Company, chartered in 1823. It is now used in most of our cities, and its deprivation would be thought a very serious misfortune.

An equally, and indeed much more labor-saving and convenient improvement in our modern domestic architectural arrangements, is the introduction of water from water works. Water works were commenced in New York before the Revolution, in 1774; but none were erected there until 1797, when the Manhattan Company put up a reservoir on what is now Chambers street. These small works were superseded by the Croton aqueduct, opened in 1842. Philadelphia was first supplied by a steam engine in 1799; and this was replaced by the celebrated Fairmount works, commenced in 1811. A number of our larger or more enterprising cities are now provided with aqueducts.

The fountains thus set flowing in our houses save all water-carrying, for bathing or cleaning purposes, either up or down stairs; for a proper connection with a sewerage system will admit of a sink as well as a water pipe in every story. The burdensome daily details of housework are thus very greatly lightened, and health, and time, and exertion very much economized by the various appliances of the modern city bathing-room.

Within about ten years, there have been introduced into one or two very luxurious city houses, hoistways, somewhat like those used in stores, but upholstered, and, in fact, fitted up like little rooms; these are raised and lowered so as to save the exertion of using the stairs, and are exceedingly convenient for the old and feeble.

This brief enumeration of improvements in domestic architecture could not properly include what may, however, in conclusion, be merely mentioned; that is, those large and splendidly finished houses which are erected by the great millionaires of the present day. The costly frescoes, the statues, the extravagant splendor of their fitting, the picture-galleries, conservatories, libraries, etc., etc., though good and beautiful in themselves, are exceptions, and not yet numerous enough to be considered domesticated in this country.

CHAPTER II.

FURNITURE—FURNISHING GOODS, ETC.

The furniture of country dwellings during the latter part of the last century was scantier than now, and, on the whole, of much cheaper quality and poorer make, although that of the wealthy was often handsomely designed, well and massively made, and heavily and tastefully ornamented. Little machinery was used in manufacturing furniture, which had, therefore, to be made by hand labor. This made patterns more numerous, as one design often served for a single side-board, set of chairs, etc., and for those made by one workman only; while now, one pattern may serve for thousands of sets. There was, therefore, greater variety, and often remarkably fine workmanship, and even artistic skill. The greater cheapness of wood, and the little use made of veneering, occasioned much furniture to be made of solid wood. Many pieces of this ancient,

solid furniture now bring extravagant prices at auction, or from a second-hand store, where chance supplies a buyer with taste and means. As much as ten, or even twenty dollars each have been given for old-fashioned, carved, mahogany chairs; from twenty-five to forty dollars for a tall clock, etc., etc.

The increase in the supply of money, the decrease of any distinction between classes of society, and the general diffusion of wealth and comfort, render the difference between the furniture of the rich, and that of the poor, much less at the present day than formerly. Comparatively few luxuries of any kind are now accessible to the rich, which are not so to the farmer and the mechanic. This is not, of course, to be understood of the very poor, nor the very rich; nor of the most expensive luxuries; for Gobelin carpets an inch thick, marble statues by Powers, pictures by Church, Johannisberg wine, Strasburg pies, and the like, can never be possessed except by very few.

The bedsteads of our grandparents and great-grandparents were very commonly "four-posters;" that is, they consisted of four tall posts, into which were framed the side and end pieces. These posts often supported a wooden frame covered with cloth, somewhat like a roof, and called a "tester," from whose four sides hung down the curtains. Feather beds were universally used. Sheets were of linen; and coverlets of patch-work, marseilles, chintz, etc.

Carpets were comparatively little used; most people contenting themselves with a floor, washed clean, sanded, or, at most, painted. The carpets used eighty years ago were mostly English or Scotch ingrain, though a good many home-made rag-carpets were also used; and the price per yard was, perhaps, $1.50 to $1.75; not varying very much from the present price of a fair article, though the same sum represented more value then. There is a well-known anecdote of an honest old farmer who was one day introduced, for the first time, to a carpeted room. The carpet, as was usual in those days, was a sort of patch in the middle of the room, surrounded with a wide margin of bare floor. The visitor skirted cautiously along the sides of the room, and when invited by the lady of the house to walk across, excused himself with rustic politeness, because, he said, "his *boots were too dirty to walk on the "kiverlid."*

Chairs were of hard wood—maple, oak, cherry, or mahogany—with seats of wood, basket-work, or cushion, covered with cloth, haircloth, or leather. Much skill and taste was expended on many of the costly solid mahogany parlor chairs, and they are even now much more stately than most of their modern successors. The rocking-chair—a truly American invention—dates back to a point not ascertained, but certainly not less than seventy or eighty years ago. No rocking-chairs of so antique a pattern as common chairs can, however, be found. An early improvement upon the old-fashioned wooden or wicker chair-seat was the straw-seat, of straw or rushes, woven together in four compartments, which converged to the middle of the seat. The cane-seat, woven like fine basket-work of slender strips of ratan, came afterward, and is still much used; it is strong, neat, light, and convenient. Many business and study chairs are now made with the seat pivoted on a stout iron pin—a very convenient invention, rendering it very easy to turn round from writing-desk to customer or client.

Tables were made of oak, pine, cherry, black walnut, and mahogany. In old-fashioned houses may sometimes still be seen a small table hinged to the wall at one side, so as to turn up flat against it, secured, when not in use, by a button. A leg hinged on beneath hung flat to the table when thus raised, and swung to its right place when lowered. Some old tables were enormously heavy, framed almost as strongly as a house, and with curiously complicated swinging legs to hold up the leaves. Such tables were often heirlooms, as was much household furniture. The substantial strength and solid materials used rendered it much more fit to serve generation after generation than the lighter and cheaper articles now made. The present "extension tables," which are frequently used in dining-rooms, were first patented in 1843; they draw out within certain limits to any length, when additional boards supply the top. Thus the same table accommodates either a large party or a small one.

The sideboard was an indispensable article in dining-rooms where it could be afforded, being used instead of a closet, to hold plate, wine, table-linen, cake, etc.

Bureaus, or chests of drawers, were made on a larger scale than now, sometimes towering far toward the ceiling, containing a

great number of drawers, large and small, and often ornamented in a peculiar and striking manner at the handles and keyholes, with brass escutcheons elaborately and fancifully pierced or carved.

The movable wash-stands, still commonly used, have been replaced in some cases, where aqueduct water in pipes is used, by fixed stands, sometimes luxuriously topped with marble, having fixed basins sunk in them, faucets for water, and a hole below to let it off. A "water-back," or boiler, attached to the kitchen range or stove, is sometimes made to supply hot water through pipes, from which another faucet supplies hot water as desired to each basin—a most comfortable provision in cold weather.

China and glass ware were much more costly than at present; pressed glass, now so extensively used, having been introduced only within the present century. Pewter platters and plates were frequently the only dishes on a country table. Table crockery was most commonly of white stoneware, with blue edges, or of the "willow pattern." There was very little silver ware, and what there was, was much more solidly manufactured than is now usually the case. Block tin was much used, until to a great extent superseded by Britannia metal, which came into use about twenty-five years since; "albata," a sort of white metal, introduced within about ten years, and German silver, an invention dating back, in this country, about twice as far. A still later substitute for the precious metals is "oreide," a sort of brass, very closely resembling gold; and another, discovered within the last three years by a French chemist, is aluminium, a light, strong metal, resembling silver in appearance, which can be extracted from common clay, and other aluminous earths. It is by no means improbable that this last metal will come into very extensive use, for household as well as other purposes.

Silver forks were first brought into general use about twenty-five or thirty years since. Those previously used were the common three-pronged steel forks, or two-pronged ones, either of them sufficiently inconvenient for carrying loose food to the mouth. Another improvement, about as old, in table furniture, is the invention of balanced knife-handles, the weight in the handle keeping the blade off the table cloth when laid down; a little thing, but very promotive of cleanliness.

Instead of the modern Yankee clock, the first patent for which was taken out by Eli Terry, of Plymouth, Conn., in 1797, were used either small Dutch clocks, stuck up on the wall, like a swallow's nest, or the old-fashioned tall clocks, in cases seven feet high, which were sometimes very handsomely ornamented with carving, brass decorations, and richly painted dials. On the broad faces of these old clocks were sometimes given, besides the hour and the minute, a whole almanac of indications: the time of high tide, moon's age, day of the week and month, name of month, year, etc., etc. Occasionally, a wooden bird came out and was supposed to sing, or a tune was played when the hour struck. Quite a large number of these old clocks, most of the best of which were made during the first quarter of this century, are still in use, and are frequently excellent time-keepers.

These observations do not include the Mississippi valley, which was just beginning to be settled by Anglo-American pioneers at the close of the revolutionary war. In all that extensive region, the rudest substitutes for all the supposed indispensable instruments of civilized life were used. Furniture, indeed, scarcely existed. A bedstead and a table, rudely hewn out by the sharp axe of the master of the house, some stools of the same manufacture, a shelf, a row of pegs in the log wall, an iron kettle, which often served in its own proper person the various purposes of wash-basin, cooking-kettle, soup-tureen, slop-dish, dish-pan, swill-pail, and hog-trough; a few tins, or a little crockery, a chest or two, a stump hollowed at the top for a mortar to pound corn, and a stick for a pestle — such was the scanty furnishing of that day in that region. As the population has increased, it has brought with it from the older states all their improvements, and now no distinction can be found between the two sections—at least, so far as concerns those of moderate or liberal means.

Lamps, for oil, or candles of tallow, sperm, or wax, were the only means of lighting either rooms or streets, eighty years ago. The amount of ingenuity which has been exercised in this department of housekeeping is astonishing; a hundred and thirty-seven patents for lamps alone having been issued from 1798 to 1847. The variety of these, and of the substances

to the use of which they are adapted, is remarkable. There are yet some families which make their own mould or dip tallow candles; but only a few. Those who still use candles mostly, either indulge in the costly luxury of wax or sperm, or use some of the various lately invented substitutes, introduced within ten or fifteen years, such as the so-called "margarine," "stearine," etc., made from lard, or the still more recent "paraffine" candles, of a material extracted from bituminous coal. The first innovation upon the old-fashioned custom of using oil lamps—not, however, including in this term the argand and similar modifications of it—was the introduction of lamps for the use of burning-fluid and of camphene, which are preparations of oil of turpentine and alcohol, and though neat and convenient to use, and giving a pleasant light, have, in careless hands, been the occasion of a terrible number of deaths and maimings by burning. These fluids have been in use during somewhat more than twenty years. The use of gas has been already referred to for the lighting of cities and dwellings. Not long after the introduction of camphene, a large number of lamps were invented for burning lard oil, just beginning to be manufactured, and also lard, tallow, and other gross animal fats. About thirty patents were issued for lard lamps alone, during 1842 and 1843, including lamps of the common standard style, argand and solar patterns, etc. These lamps, in some cases, gave a very good light, but it proved troublesome to light them during cold weather, and they required much greasy work in cleaning, etc.

During the last five years, another class of illuminators has come into use, and is at present spreading extensively. These are the various oils known as coal oil, kerosene, helion oil, etc., etc. They are all, or nearly all, distilled or purified from the crude coal oil of the wells of western Pennsylvania, or from the products of the more bituminous varieties of coal. It has thus far been found necessary to use a chimney in burning them, and they smoke very easily while burning; but the light they give is clear and pleasant, they are much more cleanly than any of the animal oils, and of an aromatic odor.

Improvements in furniture are gradually introduced, and in a manner which renders it peculiarly difficult to fix precise dates. It may be said in general, that the uniform tendency has been toward lightness and convenience of form. The artistic beauty of the designs has not materially improved.

CHAPTER III.

FOOD—COOKING, ETC.

The general character of the food, drink, and cooking of three quarters of a century ago, was very similar to that of to-day. Meats were the same, but less fresh meat was eaten; salt beef, salt pork, and bacon being the ordinary meat, and the beef and pork barrel being almost as universal and necessary in the household as the flour barrel. The common vegetables were potatoes, turnips, cabbages, and onions, with a few beets and parsnips. Carrots were scarcely used at all. At the south, sweet potatoes were, as at present, used in place of Irish potatoes, and okra, tomatoes, etc., were also cultivated as at present. Tomatoes were scarcely known at the north, until about 1820 or 1825, when they were occasionally brought from the south, and gradually began to be cultivated, under the name of "love-apples." The egg-plant, spinach, cauliflower, broccoli, and other kitchen-garden plants, have also been introduced since the beginning of the century, from abroad.

Bread of rye, "rye-and-Indian," or Indian meal alone, and Indian puddings, johnny-cake, and the like, were more used than at present; for most grinding was done at the small country mills; transportation was slow, difficult, and costly; neither the great wheat fields of the east, nor the greater ones of the west, were yielding their increase; and the great flouring mills that are supported by them had not grown up. Every farmer's family, therefore, commonly used breadstuff of its own raising; and but a very small share of that used in the towns was brought from any other than the immediate neighborhood.

All the labor of preparing the raw material for food was performed in the family. All the coffee had to be burnt and ground, spices pulverized, salt powdered, yeast made, soap manufactured, meat pickled, etc., etc., by each housekeeper for herself, or under her immediate supervision.

Throughout the extensive western forest frontier, a large proportion of the inhabi-

tants lived in great part upon game; but this was, from the difficulty of transportation, even less accessible in the older settlements than now, when it must be brought from the distant lakes, and streams, and woods of Canada or Maine.

The use of spirituous and malt liquors was universal. It was thought no impropriety for distinguished clergymen to own a share in a distillery; and the meetings of ministers on religious business were made occasions of jollity, often even to such an extent that the reverend companions went home quite tipsy. Cider was drank in the country, and cider, rum, brandy, or wine in town, at every meal. Spirits were expected to be offered to every visitor, and if not, the host was thought mean and stingy.

Cooking was performed over an open wood fire; a mode in many respects more laborious and less convenient than the present use of stoves and ranges; but which, if skilfully conducted, gives the food a flavor more perfect and delicate than can be attained in any other manner.

As has been implied, the changes in food have thus been more in the treatment than in the materials of it. The chief of these changes, like those in warming houses, have arisen from the introduction of anthracite coal into use, which has caused the employment of cooking-stoves and ranges, instead of the open fire. Nearly four hundred patents for cooking-stoves and ranges were issued from 1812 to 1847, and great numbers of others have been granted since; the total number of such patents may safely be estimated at not less than six hundred.

An early style of cooking-stove, and quite a favorite one in its day, was the rotary, whose top could be swivelled round by a crank and cog-wheel geared to a ratchet underneath its edge, so as to bring any sauce pan or kettle forward to the cook. This variety is, however, now nearly obsolete, and innumerable later inventions have succeeded, each enjoying a brief reputation, usually conferred rather by diligent advertisement than by any real peculiar merits in the stove itself.

The cooking range may be described as a modified stove bricked into a fireplace, instead of standing out in the room. Its oven, instead of being back of the fireplace, as in a stove, is above it; and in most patterns, so far back as to render it very hot and inconvenient for use. Some late patterns, however, have brought the oven sufficiently far forward to remedy this objection.

The use of stoves and ranges has rendered cooking much more convenient, but has, in a great measure, substituted the baking of meats in the oven for the better old fashion of roasting. Their advantages, however, are greater than their disadvantages; they are far cheaper and easier in management than an open fire; and in all the older portions of the country are necessary, because wood could not be furnished to supply the kitchens.

CHAPTER IV.

DRESS.

In discussing the changes of costume since the revolutionary war, it will be more convenient to divide it with reference to female than to male costume. On this principle, the period from 1783 or thereabouts may be divided into four, thus:—

1. 1783 to French Revolution.
2. French Revolution to 1815.
3. 1815 to 1830.
4. 1830 to 1845.
5. 1845 to present time.

Speaking generally, the changes thus succeeding each other have been improvements; although almost all of them have been sufficiently absurd in themselves. These fashions have always come from England or France; since about 1815, almost entirely from France.

1. *Period first*, 1783 to French Revolution. At the close of the Revolution in 1783, the costume of gentlemen was in the English style of the day, viz.: a single-breasted low-collared coat of broadcloth, commonly of some gay color, often scarlet, bright blue, claret color, peach-blossom, with full skirts, and ample pocket-flaps, sleeves, and cuffs; a waistcoat, with long flaps; knee-breeches, often also of gay colors, fastened at the outer side of the knee with a buckle; long stockings, black, white, or colored; shoes with the well-known showy buckles, or boots with a broad piece of white or unstained leather turned down around the tops, and therefore called top-boots; a ruffled shirt, a lace cravat, powdered hair, a queue, not unfrequently a wig, and a three-cornered cocked hat. A very few aged men still wear or have worn this costume within the last ten years, even to the queue and the shirt-frill. The cocked

hat did not maintain its place so long, though quite often to be seen during the first quarter of the present century.

The formal stateliness of this old costume suited well the more careful manners and stiff politeness of the day; for even in our republican country, the distinctions of social rank and station prevailed to an extent which few people now realize. Old persons now living can remember when "Mr." was a title considered exclusively proper for the "gentry;" when a "gentleman's" son would have been reproved by his father for calling a farmer "Mr." A farmer or mechanic was called "goodman," and his wife not "Mrs." or "mistress," but "goody."

Female costume was on the whole, perhaps, less strikingly different from that now in vogue, except in head-dress. Its other most distinguishing characteristics were high-heeled shoes, often of bright red or other strong colors; sleeves to the elbows, with heavy lace ruffles; a tight, close, long waist, and a skirt stiffened out by hoops very nearly as much as by the "skeleton skirts" now used.

The head-dresses then fashionable were, however, most monstrous, and furnished an endless theme for satire and jest. The hair was greased, and powdered, and "craped," as it was called—that is, combed up over artificial hair, a mass of tow, or a cushion; artificial flowers were worked into it, broad ribbons hung around it, feathers three feet high stuck into it, all sorts of vegetable-looking leaves and even fruit and vegetables themselves (imitated) were piled on, and a mass constructed which it seemed totally impossible for a lady's neck to uphold or endure; which was often, literally and truly, quite as large as a bushel basket. A caricature of those days represents a lady sitting in a chair during her head-dressing, while one barber, mounted on a tall pair of steps, is frizzling a curl, and another stands off at one side, taking the altitude of the edifice he has helped to build, with a quadrant. Calashes, whose gig-top appearance almost every one may remember to have seen, were invented long before this time, as early as 1765, as the only contrivance in the nature of a bonnet which would cover these vast machines. Such head-dresses required great skill in preparation and adjustment, and could, of course, not be made up by the owner herself. It was the business of the barber, and often occupied two or three tedious hours. The idea of going through such an operation daily was out of the question, and these, "heads," as they were called, were made to last sometimes for weeks together. Indeed, they were continually corrupting, even so that worms bred in them, among the flour used for hair-powder and the pomatum; and numerous recipes were in use for poisons to prevent vermin from breeding in them. Sleeping in the natural posture was, of course, impossible; ladies slept sitting up or with a carefully arranged support for the neck and head, adapted to the precious mass of absurdities that crowned it.

Period second, French Revolution to 1815. The French Revolution may be called the conclusion of the era of those strange fashions. The freedom of that period, so licentious in politics, was equally so in dress, and in this department, as in the other, caused many and great changes both at home and abroad. In this country, which had before that time followed the English fashions almost exclusively, those of France now began to take the lead, and the ancient caprices of dress to be replaced by others more modern, but not less absurd.

From about 1780, down to about 1800, women's skirts grew more and more scanty in circumference, until they were "gored," and cut so close as to almost impede walking. The waist was also carried up sometimes to one inch below the arm-pit, and the neck at the same time cut indecently low. The skirt was fitted closely to the figure, no wrinkles being admissible, and the fewest possible underclothes were worn; a fashion both abominably ugly and very unhealthy. These ungainly waists excited much deserved ridicule. A well-known song beginning—

> "Shepherds, I have lost my love—
> Have you seen my Anna?"

was parodied so as to apply to them, commencing with—

> "Shepherds, I have lost my waist—
> Have you seen my body?"

The variations in bonnets and head-dresses during this same period were many and wonderful. In 1786, women wore their hair frizzed and powdered; and for riding costume, a man's jacket with broad lapels, and a broad-brimmed hat. In 1789, the hair was frizzled out into an enormous bush, sometimes with a quantity of dangling curls besides; and bonnets, to hold this affair,

1776.

EVENING DRESS. 1780.

1780.

1785.

EVENING DRESS. 1795.

EVENING DRESS. 1797.

1800.

1805.

1805.

1812.

1812.

1812.

1815.

1818.

1820.

1825.

1828.

WINTER DRESS. 1833.

1833.

1833.

1833.

1840.

1844.

1850.

were made like an upright bag stiffened out. In 1794 a fashion came in of finishing up the head-dress with feathers half a yard high. About 1795 these styles of expansive head-dress disappeared, and small bonnets came into use all at once, like a helmet or a straw cap, with a vizor such as is now worn on a boy's cap.

From 1805 to 1810, bare arms were much in fashion with women, and a singular mode of wearing gloves prevailed. The glove was worn with a long armlet attached, which was drawn on smoothly up to the elbow, and then pushed down again so as to lie in irregular wrinkles on the arm, which was reckoned remarkably pretty. These were termed "rucked gloves." About 1808 was introduced the "gunboat" style of bonnet, which consisted of a moderate-sized crown, and a wide expanse of brim, spreading out around the face, in a form fancied to resemble the peculiar shape of a gunboat, which is very wide toward the bows.

About 1810 appeared the plaid cloaks, used both by men and women, which may still sometimes be found hung up in an old closet; very wide and long, and for women having a great clumsy hood hanging at the back of the neck. In 1814 the bonnets all at once spread out into an immense crown, leaving very little brim.

Men's costume varied during this time no less. The reign of powder and pigtails may be said to have ended about 1793, immediately after the French Revolution; and about the same time the round hat took the place of the three-cornered cocked hat. A little later, perhaps about 1800, people began to leave off wearing wigs when they had hair of their own. It is hard to comprehend how people could submit so long to a custom so disfiguring, inconvenient, and cumbrous—for every wig-wearer had to have his whole head shaved every few days, and lived in constant peril of *making a fantastic* appearance if his clumsy and unsafe head-gear should be knocked off. Yet the mode prevailed for two hundred years; nearly from 1600 to 1800.

One of the early costumes which replaced the ante-revolutionary fashions for men, and which was the height of the *ton* in 1786, consisted of a very broad-brimmed hat; a powdered wig with a pig-tail; a coat with a very short waist, broad lapels, and tremendous *swallow-tails*; *buckskin* breeches, and top-boots.

During this period, and, indeed, down to about 1830, gentlemen's necks were often swathed with an enormous thickness of cravat; a fashion said to have been introduced by George IV., while a leader of fashion, to hide the scrofulous swelling of his neck. Two or three handkerchiefs, each a full yard square, were thus worn; giving the neck an appearance which now seems excessively dowdy and uncomfortable.

During the closing years of the last century, knee-breeches began to yield to the pantaloon, which came from France; and shoe-buckles disappeared to give place to a mere string or ribbon. The prince-regent of England, afterward George IV., first led this fashion, although he resumed buckles at the petition of the buckle-makers, who represented that the ruin of their trade would starve them. It was ruined, however, in spite of them and him, and notwithstanding that he was the inventor of a shoe-buckle.

This introduction of the pantaloon and the shoe-string, and the disuse of wigs, marks the era of the modern costume. The dress-coat, however, or a garment much like it, was worn at intervals, as early as 1750; although it did not definitely occupy the place of the old-fashioned broad skirts until about 1800. It should be observed that "pantaloon" means, in its first strict sense, a garment fitting quite tightly to the shape of the leg, and buttoning close around the ankles, as if a prolongation of the knee-breeches. The present pantaloons are in strictness "trowsers," having been introduced as such, and by that name, under the auspices of the Duke of Wellington, after the battle of Waterloo.

High-heeled shoes, for women, went out of use about 1789, and were replaced by something very like the present graceful, low-quartered shoe. Round toes, for men's shoes and boots, came in about the same time, and prevailed until about 1804 or 1806, when the first beginnings appeared of square toes.

Period third, 1815 to 1830. The last period may be characterized as that of tight, scant dresses. The present one may be described as that of big bonnets, puffed hair, and leg-of-mutton sleeves, which last, however, appeared only toward its end.

Knee breeches, which had continued to be "full dress," were now quite out of date. Frock-coats had been introduced by the Duke of Wellington and his officers after the

peninsular war, together with the boot called after him. In 1815 trowsers began to be worn, being also introduced under his auspices; although the original pantaloon, with its tight, close fit and ankle-buttons, maintained itself for ten years or more before quite disappearing. In 1815, also, bonnets underwent a great revolution, shrinking to small dimensions in the crown, and spreading into a portentous brim.

Not far from 1820 began what may be called the modern era of tight lacing, which was adopted as the short waists began to be replaced by longer ones, and the modern type of female dress, viz., a long waist, bulging with a sudden angle into a voluminous skirt, became established. About 1825 was adopted a method of wearing the hair in great puffs at the sides and on the top of the head, dressed, also, with large bows of ribbon. To hold this array, an enormous bonnet was required, and was used. Skirts now began to be a very little fuller; two or three plaits at the waist being all that were at first admitted, and more being introduced from time to time. About 1828 began the "leg-of-mutton sleeves," which grew at once to enormous proportions. These ridiculous and most inconvenient appendages were stuffed out with down, or held out with reed, millinet, or whalebone; but they were continually becoming crushed, and were very troublesome. They had a certain absurd harmony with the big bonnets and puffed hair of the day, as well as with the broad-shouldered, stiffly-cut capes that were worn with them.

Period fourth, 1830 to 1845. The beginning of this period is marked by the introduction of the costume of the days of Jackson—the bell-crowned hat, long, swallow-tailed coat, with high collar and "bishop" sleeves, and loose trowsers. The bishop sleeves were distinguished by rising into a ridge where they were set in at the shoulder, as do the sleeves of the episcopal vestments; this ridge being in 1830-35, stuffed with cotton to hold them up. The big bonnets and puffed hair, wide capes and leg-of-muttons still prevailed. Boots and shoes were worn with very broad, square toes until about 1840, when narrow toes took their place; and the calash, invented almost a hundred years before, was still employed to cover the elaborate head-dress. The decrease in the size of women's sleeves is the chief feature of this period; the minor details of the successive changes of style were innumerable, as usual.

Period fifth, 1845 to 1860. This period, also, may be dismissed with brief consideration. Its first years were marked by the introduction of the sack coat, or, as it is called in France, the *paletot*. This easy, commodious, and cheap garment is infinitely more becoming than a dress-coat, and very much more convenient than either that or a frock coat. This garment, though introduced in the present century later than either the dress or frock coat, may be traced to a far greater antiquity; a very similar garment having been worn at the courts of France and England about the year 1450—nearly half a century before the discovery of America. At about the same time was introduced that most preposterous of all feminine fashions, the *bustle*, which was a sort of pad tied on behind to make the skirts stand out with the desirable degree of fulness. This was made of various materials: cloth stuffed with bran, hair, cotton, rags, old newspapers, etc., and sometimes of India-rubber, inflated with air. The bustle marked the beginning of the present period of expanded skirts. As this machine did not sufficiently spread out these garments, various other means were resorted to; the use of an enormous number of skirts—a habit most pernicious to health—and skirts fewer in number, of stiffly-starched cloth with cords sown on, or of grass cloth, or hair-cloth, or stiffened out with many cords of new manilla rope or common clothes-line, or with whalebone or coils of brass wire. All these having been tried and failed, the present fashion came up, of "skeleton-skirts," made of strips of iron somewhat similar to a watch-spring. These seem at present to be quite adequate to their purpose; although what the real reason of that purpose is, it would be impossible to say. Why women's skirts should constitute a great stiff, hollow cone about their lower limbs, within which they must wear an entire second suit of clothes for warmth and protection, is as unanswerable a riddle, as would be the inquiry why, during the first years of this century, they should be so scanty in dimensions, so thin, and clinging so closely to the figure.

Another fashion introduced during this period is that of wearing soft felt hats instead of the round hats, which last are now often described as "hard-shells," or "stove-pipe" hats; nick-names well applied, and which may aid in driving out their very un-

comfortable and unreasonable wearers. The felt hat was not often seen among us until the enthusiasm which attended Kossuth's visit to the United States, in 1851 and 1852; after which it was brought out, at first with a feather, in close imitation of the national hat of the Hungarian hero, and called a "Kossuth hat." The feather was soon left off, being not much more suitable to our national characteristics than a nose-ring would be; but the hat itself, being found both comfortable and graceful, was retained, though many different patterns have since been used.

The size of bonnets, so large about 1830, gradually decreased until a minimum was reached in the very small ones worn during the last few years. These scarcely covered the back half of the head, and were, therefore, kept in place by a sort of skewer thrust through two holes in the back lining and the knotted back hair. The bonnets worn now are a very little larger, and we may, perhaps, be on the verge of a return to large ones. Among the latest styles of ladies' head-dress are two quite remarkable ones. One is a very homely hat, singularly like an inverted tin wash-basin in form; the other is as graceful as this is awkward; namely, the "Spanish hat," a small, low-crowned hat of black felt, velvet, etc., with a brim turned up at the sides, usually worn with a feather, and with a net for the hair.

Perhaps the very latest invention of the tailors is one for men, similar in purpose to the artificial means often used by women to remedy natural defects of form. This is a sort of pad, or frame of wire covered with cloth, to be worn under the shirt-bosom, to give the chest an appearance of manly fulness. No criticism is necessary upon such a trick; for no dandy so silly as to use it could be reached by any argument whatever.

In reviewing the whole series of fashions as thus briefly presented, it will appear that, on the whole, there has been a decided improvement. There are, doubtless, a sufficient number of not very wise fashions in dress now prevailing; but the preposterous, filthy head-dress of 1783, the indecent, scanty costume of 1800, the pudding-like cravat of the same period, the broad shadow of the gunboat bonnet, the balloon-like appendage of the leg-of-mutton sleeve, have each, in turn, been superseded by something, on the whole, less foolish; and it may be claimed with safety, that at this present writing, the fashions, both for men and women, are based upon something more like common-sense principles, and admit more freedom in adaptation, and, therefore, greater convenience and grace, than has ever before been the case. It is matter of congratulation, however, that an American taste is being developed, and our ladies becoming less dependent on fashions from abroad; and every year is yielding a larger liberty to our female population, in adopting such forms and colors as suit the peculiarities of each individual, without regard to any absolute or universal decree, and this is still more the case with men. Thus we seem to be approaching that condition of eclectic philosophy which, if it becomes actually a received law, will afford the utmost possible variety, comfort, and elegance.

CHAPTER V.

SOCIAL AND MENTAL CULTURE—INTERCOURSE—HEALTH—ART, ETC

Nearly all the increase in comfort and happiness which is the pride of modern civilization is traceable to scientific discovery and to mechanical invention. These causes have supplied the means of the labor-saving machines and processes of the last three-quarters of a century. The use of these machines and processes has brought it to pass that men can earn their living by the labor of a less proportion of their time than formerly. And this power enables them to devote a correspondingly larger share of effort to the task of gaining knowledge, and of pressing forward in the path of moral and mental improvement. The amount of mental activity which has been devoted to these material processes is astonishing, and is only feebly indicated by the statistical fact that from 1801 to 1848, inclusive, the number of patents issued in the United States reached the large total of 15,844.

The readiest way to sketch the general progress of society at present sought to be described, will be to set forth briefly, in chronological succession, the periods or occurrences which have marked the commencement or maturity of any important influence upon the prosperity of the com-

munity, without attempting to classify them by their species.

In 1796 was taken out the first American patent for a pianoforte, by J. S. McLean, of New Jersey. The manufacture of these instruments has become very extensive; the larger manufactories sometimes turning out thousands a year. Many improvements have been made in their construction; and they are now so good and so numerous, as to be an important means in the increasing diffusion of musical knowledge.

In 1799 Dr. Waterhouse, of Harvard University, first introduced Jenner's discovery of vaccine inoculation; a measure which has substantially freed our community from the fear, the pain, and the disfigurement of the small-pox. This single discovery has had no inconsiderable influence in lengthening life, and increasing its happiness by dispelling the apprehensions, always felt before, of suffering and death.

The importance of regular, rapid, and cheap modes of travel and transportation, to the general improvement of society in wealth and intelligence, is exceedingly great. Distance of residence, difficulty of travelling, difficulty of carrying, has, through all the history of the world, been a chief means of keeping nations poor, because thus they could not exchange what they had for what they had not; and thus, however much they possessed of one thing, they were poor. For wealth does not consist in mass of possessions. Not mountains, even of gold, if unexchangeable, are wealth. Wealth is *mass and variety* of possessions together, and must therefore necessarily arise by exchange, that is, travel and transportation. The sea-coast nations, commanding water-carriage, have thus always been the rich ones; it was not until steam destroyed the obstacles of river currents, and of wide plains and rugged mountains, that inland nations could be rich in any sufficient sense.

In the same way, speed and certainty of intercourse promotes exchange of mental wealth, by correspondence, visiting, etc.; maintains a sense of nationality, and keeps up acquaintance and good feeling. Were it not for ease of travel, there would be but slight hopes of keeping Maine and Georgia in the same republic with California and Oregon. As it is, they will remain.

In 1811 commenced a movement of a very different character from that of the inventor Fulton, but which has exerted an influence upon the health and morals of our nation, even more important than the benefits of cheap and rapid locomotion. This was the temperance reform.

The laxity of manners and morals which must attend war, had greatly increased the use of intoxicating liquor during the Revolution, and it continued to spread after the peace. Dr. Rush had published his "Inquiry into the Effects of Ardent Spirits," in 1804; but no decided movement against their use was made until 1811, when the Presbyterian General Assembly appointed a committee on the subject. That and other ecclesiastical bodies, at various times, passed different resolutions and recommendations intended to limit the use of liquor, but with no very great success. The first total abstinence society was formed in Boston in 1826, and during the following ten years, others multiplied with great rapidity, liquor-selling became disreputable, and the common use of ardent spirits was to a very great extent broken up. For the last quarter of a century it has been a generally received belief that the use of any intoxicating liquors as a beverage is hurtful, demoralizing, and an unmitigated evil in every respect; and the consequence has been perceptible improvement in health, diminution of crime, and saving of money both public and private. It must, however, he admitted that the temperance cause has stood still, if it has not actually retrograded, during the last few years; and that the so-called "Maine law," which its advocates hoped would prove a final bar to the folly and wretchedness of intemperance, has, in some cases at least, produced rather a reaction than a progress. Still, the practice of total abstinence, and the very great diminution in the quantity of liquors drank by those not total abstinents, has accomplished an inestimable amount of good, and immensely promoted the prosperity of the nation, both in material and in moral respects.

In 1832 the study of phrenology was introduced into this country by Spurzheim. This system, whatever the correctness of its doctrines as to indications by the shape and size of the head, which are certainly believed by many intelligent persons, is at any rate entitled to the merit of having furnished a new and very clear classification of the mental faculties, which has become the means of a great improvement in mental philosophy.

Two years later, viz., in 1834, the homœo-

pathic system of medicine was introduced, which has since become very extensively believed. As in regard to phrenology, it may be said of this system, that whether all its peculiar doctrines are true or false, it has at least done good indirectly, by operating to reduce the quantity of medicines given by the old-fashioned practitioners, and to direct their attention more than before to the very important points of regimen, ventilation, and the other collateral departments of general hygiene.

About 1840 was introduced into this country the greatest improvement in pictorial art since the discovery of painting in oils by John Van Eyck in the fifteenth century; the greatest discovery ever made in that department of human knowledge; viz., the art of taking pictures by the chemical action of light, named, from its discoverer, daguerreotyping; and various modifications of which are known as the talbotype, photograph, ambrotype, crystalotype, etc. These methods render it both easy and cheap to procure an absolutely and necessarily perfect representation of a person or a thing. Besides the pleasure of thus being enabled, at a trifling cost, to possess a whole gallery of perfect portraits of friends—a privilege heretofore scarcely attainable, even at an immense price, by the great men of the earth—this new art has already been made exceedingly useful in securing diagrams of lunar and other astronomical phenomena, and in taking pictures of buildings, landscapes, statues, etc.; and promises in many ways to promote the progress of many other arts, by means of its wonderful power of perfect representation.

Not far from the same time, another system of medical treatment was introduced—the "water-cure," or "hydropathic" system, which has proved very useful in certain classes of diseases, and has, like homœopathy, done its part in relaxing the dogmatic and extreme severity of much of the old, or allopathic practice. This treatment, besides a very simple mode of life, consists only in the application of water, at various temperatures and in various ways; and it is successfully practised in many establishments devoted to it, which have been put in operation at places where water of the requisite purity could be had.

In 1845 the principle of cheap postage was established in this country by a law of Congress, and another step thus taken toward the entire release from tax or encumbrance of the intercourse of one mind with another. Cheap postage is one of the latest signs of a high civilization; it is one of the most promising indications of our own future.

Still one year later was discovered the medical process, since termed "anæsthesia," which consists in rendering persons insensible by the inhalation of certain gases (usually an ether, or chloroform), thus affording an opportunity of performing surgical operations quite without the knowledge of the patient. The agonies suffered in the dentist's chair, or under the hands of the surgeon, and the not less tormenting pain of many nervous diseases, may thus be much alleviated, and even entirely relieved.

In the same year was issued the first patent for sewing machines, to Elias Howe, jr. It is only necessary to allude to the very great saving of time, and strength, and health which these machines have effected; their effects are before the eyes of all. They are performing in a day the work of weeks, and doing very much to relieve women of a species of labor which was principally confined to them, but which consumed, in the merest petty drudgery, a wretchedly great proportion of their time, and often ruined health and destroyed life.

An important outgrowth of one of the departments of improvement which have been described, is the modern hotel. The American first-class hotel is an institution quite peculiar to this country, and includes within itself many of the various inventions which have just been catalogued: splendid furniture, elaborate food, economical and yet liberal housekeeping, labor-saving machinery; in short, an unrivalled combination of the applications of human ingenuity to the improvement of domestic life.

To recapitulate: It has thus been shown, though briefly and with many imperfections, that the course of our nation during the seventy-seven years since the Revolution has been one of steadfast, and essential, and solid improvement in things material and immaterial, physical and mental, practical and ornamental; in business, travel, dress, homes and home comforts, wealth, morals, intellect—in short, in every department of human activity.

BOOKS.

CHAPTER I.

BOOK TRADE—PUBLISHING—JOBBING—RETAILING.

"YANKEE curiosity" is frequently a subject of remark with the flippant writers and travellers of the old world, and if not always urged as a reproach, it is not seldom referred to in a deprecating sense by those who do not appreciate the immense activity of intellect of which it is one manifestation. There is no doubt either of the existence of the alleged curiosity, or that it sometimes exhibits itself in a ludicrous light; but it also manifests itself in the indefatigable investigations to which nature and art are continually subjected by the ever inquiring American mind. There result from those investigations, not the dreary metaphysical theories that are evolved from German contemplation, but those countless inventions, improvements, and applications of mechanical principles that are every year recorded in the patent office, and the effects of which are seen in every department of industry. The religious and political assemblies; the amusing, instructive, and scientific addresses of the lecture-room; and the marvellous circulation of the public press, all reflect that thirst for knowledge which is a part of Yankee curiosity. This, however, gives a still stronger evidence of its vigor in the book trade, which, in the United States, shows an extent of sales that no other country can hope to approach. It is based on the universal ability of the people to read, and on that "curiosity," or thirst for knowledge, which induces them to do so, accompanied by means to purchase books. The word "means" comprehends not only greater wealth on the part of the purchaser, but reduced prices for the books. The existence of 20,000,000 of people who can all read, composes an immense market for books, that must be supplied; and happily, busy intellects have written, while the mechanical processes of publishing have been developed in a manner to supply the demand. In order to compare the book market of the United States with that of Europe, we may refer to the census returns of 1850. That informs us that in that year there were 19,553,068 white persons in the country. Of these, 9,421,557 were over 20 years of age, and of these, 962,898 could neither read nor write, of whom 195,114 were aliens. We now turn to France, and we find that there were 17,000,000 persons over 20 years of age; and of these, 3,400,000 only could read and write, and the remainder, 13,600,000, could not. In other words, there were, in the United States, 8,458,000 readers of books, against 3,400,000 in France. But there were, also, in the United States, 4,530,845 persons between 10 and 20. Of these, 4,063,046 attended school, and, as a consequence, bought and read school-books. The ratio of these scholars to the whole number who can read and write must be the same in France. Hence there are, in fact, three times as many readers in the United States as in France.

The making of books has kept pace with the increasing demand for them. If we look back to the library of King Alfred, we find that he gave 8 hydes of land for a book on cosmography, brought from Italy by Bishop Biscop. At such rates, none but a king could afford to buy a book; but, on the other hand, there were few, even among nobles, who could read if they had them! There was no market, and no manufacture. As the art of reading became so far progressive that the old barons could sign their names, instead of punching the seals of instruments with their sword pummels, some little demand for books sprung up, but at enormous rates. The state of the book market, when literature began to dawn in those iron ages, Scott makes old Douglas describe in terse phrase:—

> "Thanks be to God! no son of mine,
> Save Gawain, e'er could pen a line."

A modern canvasser would not have gotten

his name in advance for numbers to be left. Louis XI., of France, in 1471, was obliged to give security and a responsible endorser to the Paris faculty of medicine, in order to obtain the loan of the works of an Arabian physician. The art of printing, which was introduced into England in 1474, had an important influence upon the production of books, and this, probably, was the cause of a greater spread of learning, that reacted upon the demand. The Bible was the most commonly used, and these, in noble houses, with heavy covers and clasps, were chained to shelves and reading-desks. In the sixteenth and seventeenth centuries, books were mostly folio and quarto. But the dimensions of books decreased as they became popularized, and this was in proportion to the spread of learning among the people. This went on gradually, until both the market and supply were considerable, up to the eighteenth century. With the colonies of America—among whom both religious and political views were based upon general education—schools became an institution, and in New England the use of them an obligation. From that time the market for books increased with the numbers of the people. The first bookseller mentioned is Hezekiah Usher, of Boston, in 1652; and his son, John Usher, is mentioned by a writer in 1686, as very rich, and as having "got his estate by bookselling." That books, in the early part of the century, were by no means abundant, or easy to be got at, is evident from what Franklin tells us of the difficulties he encountered, and the great advantage he enjoyed, in having access to the library of a merchant. The most of them were imported at, no doubt, such expense as confined their general use to the better classes. Some years after, viz., in 1732, at the time Franklin commenced the publication of "Poor Richard's Almanac," in Philadelphia, a Boston bookseller advertised as follows:—

"Whereas it has been the common method of the most curious merchants of Boston to procure their books from London, this is to acquaint those gentlemen that I, the said Fry, will sell all sorts of account books, done after the most acute manner, for 20 per cent. cheaper than they can have them from London.

"For the pleasing entertainment of the polite parts of mankind, I have printed the most beautiful poems of Mr. Stephen Duck, the famous Wiltshire poet. It is a full demonstration to me that the people of New England have a fine taste for good sense and polite learning, having already sold 1,200 of those poems."

This was pretty well for Richard Fry, and we hope he had not then introduced the art of magnifying his sales on paper. That there were a number of booksellers then doing well, is evident from the fact that Mr. John Usher had made his fortune at it 50 years before; and in 1724 there was held a convention of Boston booksellers, to regulate the trade, and raise the price of some descriptions of books. The publication and sale of books increased slowly, until the events of the war began to excite the minds of the public, and works on those subjects were eagerly taken up. The practice was, to some extent, to sell books in sheets, to be bound as the purchaser might fancy—perhaps to be uniform with his library. This is now done only where the work is sold in numbers by subscription. There was then less capital in the trade, and few were disposed to risk the amount required to get out large works of a standard character. The cost was then more than it now is, and the time required much longer to complete and dispose of it. There was then formed, in 1801, the American company of booksellers, and these generally subscribed together in the publication of a work, to guarantee the outlay. There was a sort of union, that regulated the principles of publication, and those who did not conform to these regulations were repudiated. School-books were, as a matter of course, as having the largest and steadiest market, the first that were extensively published. A type of this class of books is Webster's Spelling-Book, which has grown with the country in a remarkable manner. In 1783, with the advent of the peace, Mr. Noah Webster published his elementary spelling-book. The work became a manual for all schools, and its influence has been immense, in giving uniformity to the language throughout the whole country. The "Yankee schoolmaster," who was raised upon that book, has gone forth into every section of the Union, spreading the fruits of that seed of knowledge, as writes Fitz-Greene Halleck:—

"Wandering through the southern countries, teaching
The A, B, C, from Webster's spelling-book."

When it was first published, there were 3,000,000 people in the United States; there

are now 30,000,000, and there have been sold 32,000,000 copies of the work, or one for every soul in the Union. The spelling-book was enlarged into a dictionary in 1806, and immediately Dr. Webster went on with preparations for a still larger work. This occupied him 20 years of unremitting research, during which the sales of his spelling-book supported his family; and in 1828 the work was published in two quarto volumes. Twelve years after, viz., in 1840, a new edition made its appearance, greatly improved; and the last edition contains a vocabulary of more than 80,000 words. These works have exerted a wonderful influence in giving uniformity to the use and pronunciation of the language. There have been sold more than 200,000 copies of the large dictionary; and the sales of the spelling-book are 1,500,000 per annum by D. Appleton & Co., New York. During 70 years the spelling-book grew into a dictionary superior to what any other nation could boast of in its language, and with its growth, its sales spread in proportion. It is a type of the country itself, and its future is still before it.

The publication of religious works was greatly promoted by the societies formed, particularly the American Bible Society, which was formed in 1816; the Bible Society of Philadelphia in 1808; one in Connecticut in 1809; and also one in Massachusetts. The American Society in New York published, in its first year, 6,410 volumes, mostly Bibles and Testaments. In 1854, the issues were 815,399, and the whole number during 42 years, was 12,804,083 volumes of the Bible. A good copy of the Bible is sold for 45 cents, and a cheaper edition at 25 cents; Testaments as low as 6¼ cents. Contrast this with the Bible copied in 22 years by Alcuin for Charlemagne about 800, and which was sold in modern times to the British Museum for $3,750, and the distance we have gone appears great.

The American Bible Union was organized in 1850, and it has since issued 59,748,804 pages of matter, including Bibles. The publications by other societies have been considerable.

These societies were not a portion of the regular book trade, which continued to be mostly under the association, until the appearance of the Waverley Novels in 1820 to 1830. The competition to which the large demand for these works gave rise, broke down old arrangements of the trade. The publishers thenceforth acted independently. At the same time, the supply of desirable books from abroad, upon which there was no charge for copyright, was much increased; and as all the publishers were upon the same footing in respect to those books, the competition extended only to the mechanical process, reducing its cost to the lowest rates. The capitals of the publishing houses gradually increased, but there was still great difficulty in getting an American book printed. Cooper tells us, in the preface to his Pilot, that so great was the difficulty he encountered in getting a printer to undertake it, that he was obliged to write the last page of the story first, and have it set up and paged, to insure the extent to which the matter would run.

About the period of the establishment of the American Bible House, a number of firms commenced business, some of which have reached great eminence in the trade, such as Harper Bros., and Appleton & Co.

In the publication of books, the expenses are of various kinds, and may be classed under general heads as follows: First, as in the case of Mrs. Glass's recipe for cooking, catch your fish. This is done in various ways. Among the American publishers, until lately, the works to be printed were supplied from abroad, without cost, and the publisher only selected and printed according to his judgment. To decide upon these, readers are employed to read manuscripts, as well as books; but the difficulty of deciding what will "take" with the public is very great. At other times the written matter is purchased for a sum of money of the author, who offers it for sale. Again, an author may have the publishing done at his own risk and expense. Sometimes this is done only to the extent of a few copies to present to his friends. At another time the work is printed at the expense of the publisher, who allows the author a certain sum for every copy sold—the author retaining the copyright. At other times a work may be gotten up by the publisher, employing a number of writers, and paying them by the page for their labor. After any or all these plans have been adopted, and the "matter" is in hand, the expenses are, first, "composition," or setting up the types, from which proofs are taken to be read by the author. When all corrections are made, the type is sent to the stereotyper, who casts therefrom plates, each one containing a page of the

book. These plates are sent to the press-room, where they are "worked off," generally on an "Adams press." The paper is purchased according to the size of the proposed book; sent to the press-room; and "wet down," by being opened and sprinkled with clean water. Standing in piles for a number of hours, the dampness diffuses itself through the paper, and it is ready for the press, whence it goes to the binder, leaving his hands ready for sale. Thus the composition and stereotyping, the press-work, the paper, and the binding, are the chief expenditures, requiring large capital. If the work is illustrated, the expense of designs, of engraving and printing, swells the amount considerably. When in the hands of the publisher, there are a number—perhaps from 100 to 200—appropriated to the press, a copy to each editor. Two copies are deposited with the copyright clerk, with his fee. The expense of advertising is then added, and this is according to circumstances. Sometimes large sums are so spent, particularly when the author is himself interested, and has not the means of spreading the book possessed by the large publishers. There are two distinct prices to all books. These are the trade price, charged to those who sell again, and the retail price, charged to the public. This, however, sometimes depends upon circumstances. The city publishers have correspondence with all the booksellers throughout the Union, and to them they send numbers of the books published to sell, and with them show-bills, and means of making the work known. In such cases, the works, if not sold, are returned in a certain time at the expense of the publisher; but, if sold, the trade price is charged.

The number of book publishers in the United States is about 400. There were 385 in 1857, mostly in New York, Boston, and Philadelphia. About thirty years since, a practice sprung up of holding semi-annual sales by auction, called trade sales, which are now regularly held in the cities of New York, Philadelphia, and Cincinnati. These sales are made up by contribution from all the leading publishers, and are attended by retailers as well as wholesale buyers. That opened in New York, September 4, for the fall sales this year (1860), was very full. The catalogue comprised 522 pages, and probably cost $1,500 to get out. The sales reached over $500,000. It did not comprise, however, the books of Harper & Brothers, that firm holding a sale on their own account. This mode of selling diffuses the publications through all branches of the regular trade. This is divided into publishers, jobbers, and retailers. The number of regular booksellers who distribute the productions of the publishers is about 6,500; but the number of those who keep books as one item of a general assortment of goods is very large, and cannot be ascertained exactly. The jobbers buy in quantities of the publishers, and consequently obtain them at rates which allow them to supply retailers at the publisher's, or trade price, and still realize a profit. The retailers are to be found in every town and hamlet of the country; almost every country store has some books among its wares. Through these regular channels the books descend, from the great reservoir of the publishers to the little lots that are brought to the view of the reader. Although the large publishing houses issue any description of work that will pay, yet the increasing extent of the trade has led to subdivision in bookselling; such as those who keep foreign books only, and import any work in any language to order. These are, again, divided into French, German, and English. There are also sellers of medical books, of law books, of religious books, of scientific works, and miscellaneous productions.

It is obvious that this "regular trade" depends upon the demand from the public; that the readers shall come to the book. To do this, it is necessary that the public shall know, first, that the book exists, and second, that it is one in which they have an interest. To spread this information is the most difficult problem; and it is done by the regular trade through advertising in the papers, by means of the editorial notices in exchange for the presentation copy, and by means of placards spread plentifully in public places, particularly in all the stores where the books are for sale. These are means which are applicable only to the first appearance of the book, since the notices and placards are promptly succeeded by others, and the announcement forgotten by the public. If the work takes, and creates a sensation, the sale continues large. This sensation is sometimes artfully brought about by means of political or other organization, according to the nature of the work. Sometimes an immense number of copies of most worthless matter is thus put upon the public.

The enormous difficulty of making any work known to the public, can be appreciated only by those who have tried it; and this difficulty increases in proportion to the number of people and the extent of the country. The fame of a really good work spreads among those only who are interested in the matter of which it treats, and not at all among those who are either not interested or opposed to its teaching. Hence religious, scientific, and political publications form, as it were, parishes within which the work may circulate. From these circumstances arise the thousand and one modes adopted by publishers to arouse public curiosity, and sometimes with very great success. The publication of school books has at times assumed an extraordinary character. The object of the publishers is, of course, to create for them a popularity with the schools, and to have them introduced by any means. This desire has induced many to send agents to various schools, and substitute new books for the old, without charging for the difference in value. A system so ruinous cannot, of course, last long. The competition in school books by many ways, direct and indirect, greatly enhances the cost of education, by causing children, who cannot always afford it, to buy new sets frequently.

Another mode of selling, recently introduced with some success, is the "gift-book" system. By this plan, the books are sold at the regular retail price; but with each and every book sold, some article of jewelry is presented to the buyer. Every book in the store being numbered when the buyer selects, he receives the jewelry which bears a corresponding number. This numbering, of course, takes place preparatory to the sales, and is so arranged that the jewelry is apparently of greater or less value, according to the work. The actual value of the jewelry is really very small, not so much as if a small sum were deducted from the price of the book, as a commission on its sale. There seems to be nothing objectionable in the mode of selling beyond the sort of chance which the buyer is led to suppose he plays for jewelry in making a purchase. The book is generally worth the money. It has in a few cases been very successful, so much so as to have broken down the old-fashioned barriers of legitimacy, and taken rank with the elder magnates of the trade; Prof. Ingraham's "Pillar of Fire," "Throne of David," etc., which were thus introduced to the world, being among the largest selling books of the day.

The sale of old or second-hand books is also a very extensive branch of business in the great cities. It is obvious, that where book-buying and book-reading are so prevalent, as is the case among all classes of the people here in the United States, there must exist a large number both of public and private libraries, and that these, through death, and the continual vicissitudes that attend families, are being constantly broken up. If every family has a library of greater or less magnitude, sooner or later there is a sale, and it generally comes to the hammer in one or more of the large book auctions that are held almost nightly. These auctions are attended by the public, but mostly by the second-hand booksellers. Of these there are numbers in those parts of the city frequented most by strangers. They are the same as the "book-stalls," so familiar a feature in the literature of England and the countries of western Europe, as they are in fact a necessity everywhere. In New York, the stall-keeper generally procures, for a rent of $50 to $150 per annum, according to circumstances, the privilege of putting up a set of shelves against the outside of some store corner. These shelves shut up at night, like a large window, and the shutters are fastened by iron bars that have padlocks. These shelves contain a small stock, from $300 to $400 value, of the most saleable books that can be picked up cheap at the auctions of books, or of household furniture of families breaking up, or purchased of needy persons who offer them. It follows that the stalls, or stands, become the receptacles of all old books, and sometimes very rare and valuable ones that have gone out of print, and can be found nowhere else. A great many valuable foreign books are found here, having been disposed of by immigrants who become necessitous. A large number of books are sold from these stalls, which also keep much of the current new literature. The keepers—some of them—soon become possessed of sufficient capital to open whole stores; and there are now in New York, and most cities, some quite large stores that have rare collections of old books. This business has also extended across the water, so that persons of more scholarly tastes have, through these agencies, access to the reservoirs of old books to be found in the cities of Europe.

In Philadelphia, there are book stores of this class on a large scale.

A distinct class of publishers are those who issue books by subscription, or send the books to the reader, instead of waiting for him to come to the book. These are of two classes—those who issue books in numbers, and those who issue complete works. We have spoken of the great difficulty in bringing the existence of a work to the knowledge of the individual reader. The regular trade seek to do this by general appeals through the public press. The publishers by subscription take the more direct and energetic method of appealing personally to each individual, showing him the work, stating its merits, and enlisting his judgment. This system, when properly conducted, is the most satisfactory to the buyer and to the seller: the former knows exactly what he gets, and the latter gets his pay for what he delivers. Harpers' "Illustrated Bible" was published in this way, the number of issues being known in advance, and the edition reached 25,000 copies, at $20 each, or $500,000. The mode of publishing by numbers involves the employment of a great number of agents, and the success of the enterprise depends in a great measure upon these. Much dissatisfaction has grown out of this plan of sales, arising from the nature of it. The numbers will sometimes far exceed what the agent promised to complete the work; and many other contingencies arise, not anticipated by the buyer. The contracts made with the agents are various, according to the expense of the publisher. The numbers are delivered at uncertain times; and, when completed, the expense is generally much more than was looked for by the subscriber. The numbers, if then all preserved, are to be bound at greater outlay of trouble and expense. It not unfrequently happens, in this class of publications, that the subscribers drop off so fast, from disappointment and dissatisfaction, that the work is abandoned, unfinished, by the publisher.

The plan of combining the two systems is coming now into favor. It is to publish a complete work of a high character, and sell it by agents. This is found to be far the most satisfactory. The work is then got up in an unexceptionable manner, and the publisher being at less risk than when depending upon the advertising system, it is done cheaper and more thoroughly under the supervision of the publisher. The agent then accosts the individual reader with the complete work in his hand; the buyer inspects it, and pays the price, at once completing the transaction on the spot. A well-organized system of canvassers will thus gradually bring a deserving work to the notice of the whole people by personal appeal. The work does not fall still-born, because the first notices have failed to attract readers, but its sale grows steadily with its spreading reputation, since the publisher, looking to a continued sale, takes care that it shall be of such a character that its reputation will grow as the work spreads. This plan is so obviously useful and proper, that many important works, published originally on the trade plan, are now being withdrawn and placed in the hands of agents, who, being responsible and intelligent men, bring the book to the notice of the reader directly. In this way, all the arts and appliances resorted to to attract attention and to manufacture opinion in advance for books are avoided. There is, doubtless, a large portion of the public who do not depend altogether upon their own opinions for the merits of any book, but it is precisely this class of readers that the sensation system of publication is designed to reach. In such cases the work will not live on its merits, but will be condemned as soon as the excitement is over, amid the regrets of the purchaser, and be forgotten. Among the works that have had large sales by subscription is Goodrich's "History of America," of which 100,000 were sold. Howe's "Great West" sold also to the extent of 100,000. The same number was sold of the "Cottage Bible;" and of Inman's "History of the World," 150,000 were so sold.

Among the works which have been successfully carried to high circulations by the advertising system, may be mentioned "The Lamplighter," 90,000 copies; "Fern Leaves," 70,000; "Life of Barnum," 45,000. In one case, a work sold to the extent of 310,000. Sometimes, as high as $150,000 has been paid by the public, under excitement, for works that do evil rather than good.

The circulation attained at times by sterling and standard works is very large, as follows:—

Irving's Works	500,000 copies.
Irving's Sketch Book	98,000 "
Longfellow's Hiawatha	43,000 "
Hugh Miller's Works	50,000 "

Amer. Cyclopædia, Appleton's, 16 vols., 8vo..	15,000 sets.
Benton's Thirty Years' View, 2 vols., 8vo. ..	55,000 copies.
Kane's Arctic Voyages, 2 vols., 8vo.	65,000 "
Harper's Pictorial Bible, $20	25,000 "
Goodrich's History of All Nations, $7	30,000 "

Kane's Voyages gave $65,000 copyright. The sale of Prescott's Histories was very large, giving, it is said, 50 cts. copyright. The sales of school books probably exceed all others in the quantity sold.

We have referred to the enormous sales of Webster's Spelling Book and Dictionaries, and all the sales may be placed at 40,000,000 copies. The publishers of the former, Messrs. D. Appleton & Co., print on each of the 310 working days of the year, 4,840 copies per day—being over 1,500,000 per annum. The same publishers have sold over 1,000,000 copies of Cornell's Geographical series, at the rate, now, of 200,000 per annum; their bindery turns out 10,000 volumes per day. The famous "Peter Parley's" series of Juvenile Books, that were commenced by S. G. Goodrich in 1825, and which extended to more than 40 volumes, with his other works, have sold to the extent of 7,000,000 volumes—the "Geography for Beginners" being nearly 3,000,000 of the number.

The sales of Mitchell's series of School Geography have been 5,000,000 in all; the publishers, E. H. Butler & Co., now sell 500,000 annually; they also sell 100,000 of Smith's English Grammar per year: of these, 2,000,000 copies have been sold. All the volumes issued by this house, will reach 1,250,000 *per annum*.

The sales of Professor Davies' Mathematical series, published by A. S. Barnes & Burr, are very large; in 1857, the number was 300,000. Monteith and McNally's Geographical series sell very largely: this house issues nearly 2,000,000 volumes annually.

Messrs. W. B. Smith & Co., of Cincinnati, sell annually over 2,000,000 copies of the Eclectic Educational series—a significant fact.

Messrs. Pratt, Oakley & Co., Murray street, New York, have sold about 2,000,000 copies of Olney's Geography and Atlas. They have sold to the extent of 1,000,000 of Comstock's Philosophy. This house also publishes Bullions' Grammars and Classics. Their annual sales amount to 2,000,000 volumes, or about 1,700 per day.

Harper Brothers have $1,000,000 invested in buildings and machinery, and their outlay for white paper is nearly $300,000 per annum. There are forty-one Adams' presses, worked by eighty persons. These can print 10,000 duodecimo volumes per day, or 3,000,000 volumes per annum. The house have printed 1,912 works, in 2,422 volumes—906 original, and 1,006 reprints.

Lippincott & Co., of Philadelphia, is one among the most important firms in the country: it has a capital of $500,000, and pays annually $100,000 for copyrights of works; some of these are of a costly character. Their "Gazetteer of the World," as an instance, cost $50,000. The quantity of works they sell will reach ten tons every 24 hours.

The sales of music books are also very considerable. Messrs. Mason Brothers sell from 200,000 to 300,000 per annum, and they have disposed of over 500,000 of the "Sacred Harmonica." The Handel and Haydn collection of Dr. Mason, published thirty years since, has passed through 40 editions, and 500,000 copies of the "Carmina Sacra," by the same author, have been sold.

The sales of agricultural books are very large, and one house in New York devotes itself exclusively to that business. The "Modern Horse Doctor" reached an edition of 14,000. This growth of agricultural information is covered, to a great extent, by the enormous publications of the federal government, as the Patent Office report.

From the few facts here collated, some idea is had of the enormous run that many publications enjoy, particularly of the sensation class, when a public *furore* can be excited in their favor.

The number of books that are printed in the United States cannot be correctly ascertained, but an approximation may be had to the number of works got out. In Trubner's "Bibliographical Guide," a detailed statement of the works issued in the United States, from 1830 to 1842, is given. The result is 623 American, and 592 reprints. Messrs. Sampson, Low & Co., of London, in their American catalogue, give the number for a series of years. These figures compose the following table:—

	American books.	Reprints.	Translations.
12 yrs to 1842,	623	592	
year 1852,	966	312	56
" 1853,	879	298	37
" 1854,	765	277	41
" 1855,	1,092	250	38

This table shows a large increase of new books, and a smaller proportion of reprints. If we compare Norton's Annual Book List for 1855, with Roorbach's "Bibliotheca Americana," Jan. 1, 1856, to March, 1858, the results are as follows:—

	1855. works.	vols.	Jan. 1856 to Mar. 1858. works.	vols.
Educational	139	154	748	761
Natural history, agriculture and science	65	67	160	168
Biography	124	152	213	247
Essays, poetry, and fiction	776	868	1,667	1,914
Theology	531	567	842	877
History	76	92	231	276
Juveniles	92	117	117	151
Music	42	42	154	154
Voyages and travels	29	31	157	169
Medicine	29	84	138	147
Drama	29	81	28	28
Classics	13	13	61	62
Mechanical sciences	23	24	80	91
Miscellaneous	94	96	290	317
	2,162	2,388	4,886	5,362
Of which reprints	649		1,492	

These figures show that the reprints, which were nearly one-half in 1842, have fallen to about 30 per cent. The works issued give no idea of the number of volumes, since the edition of each will vary from 500 to several thousands, as we have seen in the sketch of sales. Mr. S. G. Goodrich ("Peter Parley"), in his "Recollections of a Lifetime," gives the following table of the value of books manufactured and sold in the United States:—

	1820.	1830.	1840.	1850.
School	$750,000	1,100,000	2,000,000	5,500,000
Classical	250,000	350,000	550,000	1,000,000
Theological	150,000	250,000	300,000	500,000
Law	200,000	300,000	400,000	700,000
Medical	150,000	200,000	250,000	400,000
All others	1,000,000	1,300,000	2,000,000	4,400,000
	$2,500,000	3,500,000	5,500,000	12,500,000

The future of the book trade is immense, and is to be measured by the growth of the population who can read. This is reached by deducting from the whole population of the census the number of children under ten years of age, as follows:—

	1810.	1820.	1830.	1840.	1850.
White population	5,862,004	7,861,937	10,537,378	14,195,695	19,553,068
Under ten	2,016,479	2,625,790	3,427,730	4,485,130	5,540,586
Reading population	3,845,525	5,236,147	7,109,648	9,710,565	14,012,482

It appears from this, that the number of the reading population doubles every twenty years; but those children between five and ten use a great number of school books. The number of actual readers increases, however, faster in numbers. Thus, to 1820, the increase was nearly 1,400,000; in the next ten years, 1,800,000; and it appears, from Goodrich's estimate alone, that the increase in books sold in that period was $1,000,000. From 1830 to 1840, the sales increased by $2,000,000, and the reading population increased 2,600,000. From 1840 to 1850, the sales increased, apparently, by $7,000,000, and the number of readers 4,300,000. From 1850 to 1860, following the same proportion, the increase will have been 5,400,000 in numbers, and the sales proportionally large. Looking forward to the next twenty years, the reading population will be nearly 40,000,000 of souls, and the use of books will swell in the double ratio of larger numbers, and more generally developed education. The use of books in foreign languages grows with great rapidity, and thus swells largely the sales of the publishers.

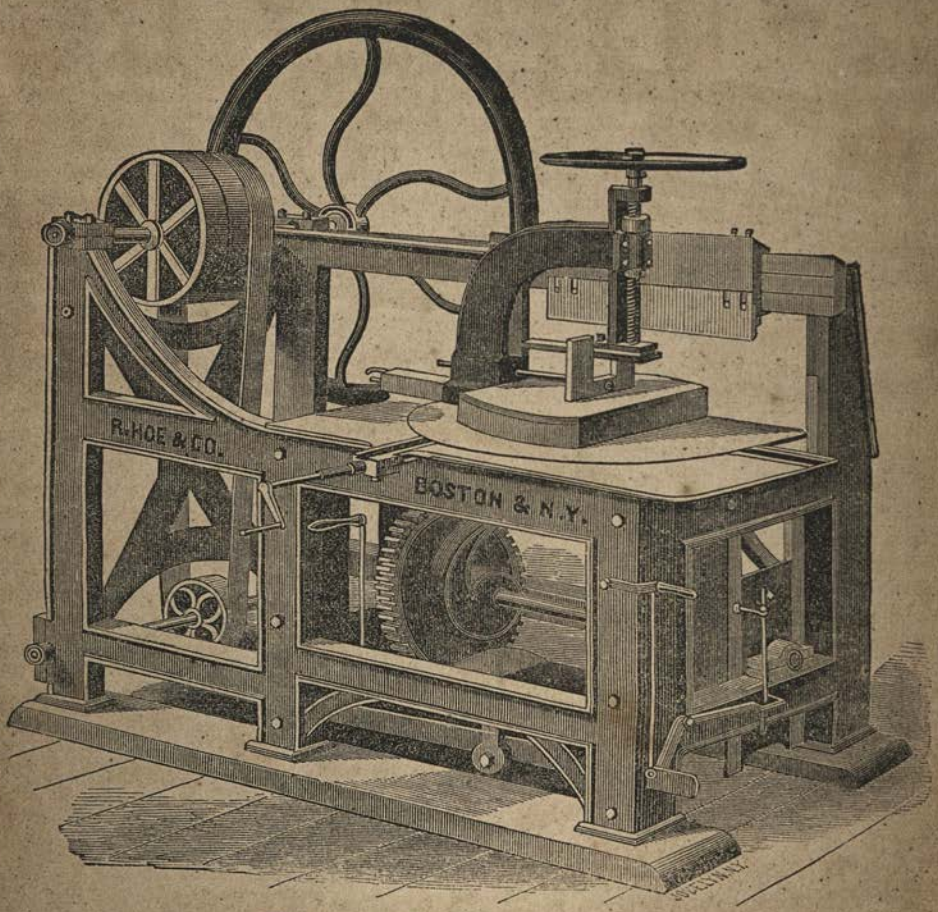
BOOK-BINDING.

CHAPTER I.

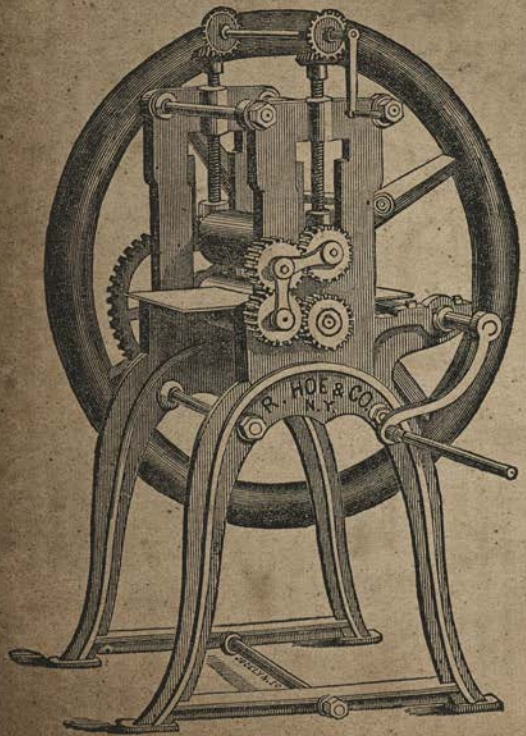
BOOK-BINDING.

THE binding of books is an art probably older than the art of book printing itself, since there existed a necessity for confining the manuscripts and scrolls that were the medium of preserving thought in ancient days. Even that was a progress, however; since the slabs of stone, that bore the divine commandments, could not have needed binding, nor could the rocks and bricks, on which the Babylonians traced their ideas, have well been bound. The different modes of conveying and preserving ideas, that were adopted in different ages and nations, caused recourse to be had to almost all materials according to exigencies, and these were preserved according to the exigency.

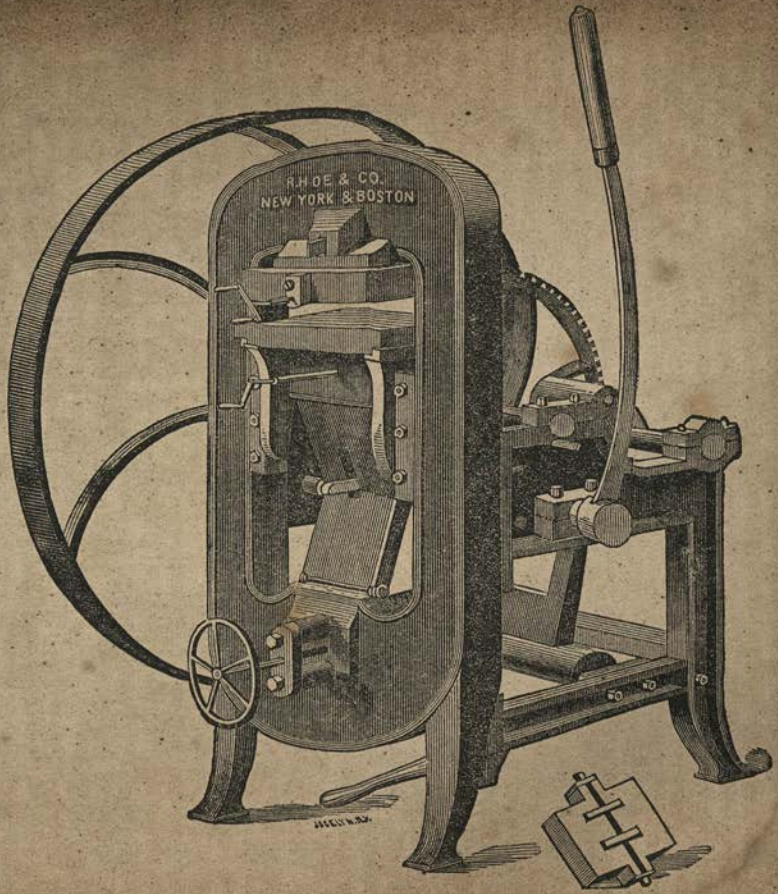
The books of wood, or metal, were bound



PATENT BOOK AND PAPER TRIMMING MACHINE.



BOOK ROLLING MACHINE.



EMBOSSING MACHINE.

by fastening the sheets of which they were composed at the backs by hinges. When parchment and paper succeeded, the backs of the sheets were sewed together, and the covering varied as the arts progressed and materials were adopted. The art itself has made material progress only of recent years. It came to be a separate art only when the discovery of printing, by multiplying books, made the binding of them too laborious for those who did it when years were spent in copying one book. In 778, Alcuin, a monk, native of England, commenced to copy the Bible, and finished it 800, for the Emperor Charlemagne. When twenty-two years was required to make one copy, there was not much business for the binder, whose labors commenced with those of the printing press. While books were still comparatively dear, the binding bore a small proportion to the cost. Of late years, the tendency has been toward neatness and durability. The requisites of a well-bound book are solidity, elasticity, and elegance. Among the nations of Europe, the French take the lead in artistic taste, but the English excel in the expensive finish of the more costly editions. In the United States, machinery is employed, more than elsewhere, to attain the desirable result at less cost.

Books are printed upon paper of various sizes, which formerly were three, called royal, demy, and crown. The book took the size indicated by the paper used. The demy size was mostly used, and the sheets were folded a greater or less number of times. Thus, folded once in the middle, gives two leaves, or four pages, and is called folio. When the sheet is again folded, it gives four leaves, or eight pages, and is called quarto; folded again, the result is eight leaves, or sixteen pages, and is octavo. By folding into twelve leaves, or twenty-four pages, we make a duodecimo; and if into eighteen leaves, or thirty-six pages, it forms octodecimo. Of a size less than this, the books are pocket editions. The sizes of books thus formed are generally designated as 4to, 8vo, 12mo, 18mo, 24mo, 32mo, 48mo, etc. The size of the printed page corresponds with the size of this fold. Thus, the size of this volume is royal octavo, being printed on paper a size larger than demy, or ordinary octavo. Each sheet of paper contains eight leaves, or sixteen pages; and there are fifty of these sheets in the book. Thus, the type is composed of sixteen pages in one "form," and one side of a double sheet receives the impression of those sixteen pages by one movement of the press, and then, being reversed, receives an impression on the other side from the same type. As the sheets leave the press they are hung up to dry, when they are placed under a hydraulic press of great power. They are then counted out into quires of twenty-four sheets each, and sent to the binders. There, in the folding room, the sheets are folded by girls. The object is to fold down the pages, so as to fall one upon the other with perfect accuracy, since upon this the proper binding of the book depends. The whole edition of sheets is folded with great rapidity by one girl. Some of these will fold 400 in an hour, but the average may be 300. A folding machine has lately been introduced, by which, it is said, two girls will do as much as eighteen by hand. Each sheet folded is a signature, and generally these are designated by some figure at the bottom of the first page of each sheet. The folded sheets are laid in piles, in the order of these signatures. The "gatherer" then, with the right hand, takes them, one by one, and places them in the left, until a complete set, or full book, is collected. This is performed so rapidly, that it is said an active girl will gather 25,000 in a day. After this, the sheets are "knocked up" evenly, and pressed in a hydraulic press; but recently, a machine has been introduced, by which time is economized. The engraving, on another page, shows the figure of that by Hoe & Company, which is the favorite for embossing, as well as compressing. The machine runs slower for smashing. The size, 15 by 17, weighs half a ton, and is sold at $400. The book is now examined by the collector, in order to detect any error of arrangement in the signatures. The books then go to the sawing machine, where, being properly arranged, fine circular saws cut fine indentations in the books, to admit as many pieces of twine, to each of which each sheet is sewed. This is performed by girls, at a table appropriated for that purpose. When the sewing is complete, the "end papers" are pasted on the book.

The books next are trimmed by having the edges cut by a machine. To effect this they are piled upon a platform, under a large knife, which, being worked by a crank, descends, like a guillotine, cutting a large number at once. The figure of the trimming machine is given on another page. The

knife used in this machine is 21 inches long, and has a short, vibratory movement; thus combining the advantages of the long stationary knife with those of the ordinary plough. The work to be trimmed is placed against the adjustable guide on the bed of the press, in front of the knife, and is compressed by the wheel and screw. The table, on which the press stands, is adjustable in all directions, and is also self-acting, so that, when thrown into gear, it rises to the required height and disengages itself—thus preventing injury to the knife—and then drops down to its original position. Three sides of the work can be successively presented to the action of the knife, by simply turning the press to the quarter and half-turn stops. The machine can be worked either by hand or steam power, and can be easily adjusted to cut any size from 3 to 18 inches long, and from 1 to 15 inches wide. This machine has been in operation some twenty-five years. The backs now receive a coat of glue, to impart firmness. They are then, by the "backing machine"—which is an improvement of some ten years' standing—rounded on the back, and receive a groove for the boards. They are then cut on the ends. A piece of muslin, nearly as long as the book, and extending an inch over the sides, is then pasted on, and the book is ready to receive the boards, or cases. These consist of mill-boards cut a little larger than the book, and cloth cut large enough to turn over all. The cloth is glued, and one board is placed upon it. The corners of the cloth are then cut, and the edges turned down and rolled smooth. It is then dressed, when it goes into the hands of the stamper. The stamping, or embossing, is done in a press, from dies previously prepared. When the sides are lettered, the letters are engraved in metal, and impressed upon the cloth. Gold leaf is placed upon the cloth, and the heat of the stamp causes it to adhere in the desired places. The book is then pasted on the sides, placed in the covers, and pressed, when it is a book bound in cloth. The stamping, or, as it is sometimes called, the arming press, will perform, almost instantaneously, what formerly would have required a week. This has been brought about by a combination of the arts —designing, die-sinking, and application of machinery. When a particular design is required upon a book, the artist draws it upon paper; it is then cut in brass, or steel, and this block in the press embosses a great many covers at a blow.

With books bound in leather, the process is not so expeditious. In order to insure solidity, the books were formerly beaten upon a stone with a broad-faced hammer. They are now squeezed between steel rollers, to effect the same object. The engraving of the rolling machine, in another column, will give a good idea of the one that is now used by bookbinders, in place of screw and hydraulic presses, for pressing folded sheets. The work is placed on an iron table in front of the rollers, between plates of iron, pasteboard, or leather, and passed through the machine as often as necessary. The adjusting screws are geared together, so that the rollers are always parallel to each other. It is strongly geared, and may be run by either hand or steam power. The sewing is done in a more substantial manner. The volume, placed in the laying press, has its back hammered very carefully, so as to spread the sheets on each side of the boards without wrinkling the inside, and the work proceeds until it leaves the hands of the finisher a perfect model. It opens easily, and lies flat out without any strain, and its hinges are without crease.

In gilding the edges of a book, they are scraped smooth and covered with a preparation of red chalk, as a groundwork for the size, which is formed of one egg to half a pint of water. The gold is laid on the size, and then burnished with a bloodstone.

The embellishment of book covers is called "tooling," and, when plain, blind tooling. By this latter, sometimes glossy black indentations are made to contrast tastefully with the rich color of the morocco. This is performed by wetting the morocco, and applying the tool in a heated state.

There has been a method invented by which the leaves of a book are fixed together with India-rubber instead of sewing. The sheets being cut evenly, receive a solution of the material; as each leaf is held only by the rubber, the book is made to lie very flat. This does not appear to have come into much favor. The fashion of imitating antique styles of binding has led to the use of wood instead of pasteboard, in some fancy styles of costly books. It is only a passing caprice, since wood cannot supplant the pasteboard.

WRITERS OF AMERICA.

CHAPTER I.

THEOLOGIANS—STATESMEN—NOVELISTS —HISTORIANS.

With the settlement of the colonies, there were necessarily but few attempts at literary productions. The Pilgrim Fathers brought with them many books from their native land, but these were mostly bibles and theological works. They were persons whose minds bore the strongest religious impressions. In them the sentiment of piety approached austerity; and they were not unfrequently charged with fanaticism. The time they had to devote to literature was wholly absorbed in the perusal of those devotional works that sustained and illustrated that faith which they had made their rule of action under all circumstances, and which they lived up to with all the sternness of their bold and decided characters. They had encountered the perils of the wilderness to rear free homes; and they were determined, also, to make them temples to the Lord. It is not to be inferred that literature and the finer arts of life were, even at that remote period, foreign to the people of the country. The founders of all the colonies were among the most elegant writers and accomplished scholars of the time. Such men as Raleigh, Baltimore, Penn, Oglethorpe, Smith, Winthrop, and a crowd of others, would have been ornaments to the most brilliant circles of any country: with them and their successors, education and religion were the foremost objects of attention. But among men so busy with the work in hand, as to declare "that the laws of God should govern until they had time to make others," much general literature could not find cultivation. Theological works were the staple, and these were produced with an independence of thought and a vigor of argument which enchained their adherents and astonished the opponents they had left at home. As the laws of God were the models of government, so were the inspired writers the only guides for the faith of that steadfast people. Those original and strong thinkers were also powerful and prolific writers; and some of them won the first place, in the estimation of the learned, as theologians. Cotton Mather, who had no equal as a scholar, wrote 382 works, of one of which, "Essays to do Good," Dr. Franklin remarks: "It perhaps gave me a tone of thinking that had an influence upon some of the principal future events of my life." Thus was one of the most powerful minds of the eighteenth, or, indeed, any century, impressed with the vigorous style of a colonial author. The simple missionary, Jonathan Edwards, a large portion of whose useful life was spent on the confines of civilization, produced works which, according to Dr. Chalmers, a century afterward, stamped him as "the greatest of theologians," and called from Sir James Mackintosh the remark that, "in power of subtle reasoning he was, perhaps, unmatched among men." Mr. Edwards succeeded to the presidency of the New Jersey College, and died in 1758. He was the type of the theological age of the country. His work became the standard of orthodoxy for enlightened Protestant Europe. That voice, which was indeed "one crying in the wilderness," became the textbook of the most learned divines of the old world.

As the colonies advanced in wealth and numbers, more diversified views naturally sprung up, but the books of amusement and instruction were mostly imported from England. There was little in the rude struggle with the wilderness to foster an independent school of literature, which flourished much better in England, where existed all the resources of libraries and information. That bold and strong natural intellects, like that of Dr. Franklin, should grow up, was almost a necessity of the vigorous race that produced him; and his works were at once ap-

preciated, because they reflected the genius of the people. The clear, strong sense of "Poor Richard" struck a responsive chord in every heart, and there was little reason to be surprised that the almanac reached a circulation of 10,000 in 1735. The school system that had been early established by the colonists, laid a broad foundation for future literature. To make all classes of persons readers, was to create a demand for books that must sooner or later be gratified; and writers and speakers were sure to find the avenue to the public mind when the occasion offered. This presented itself when the disputes with the mother country began to take a serious form. Those events stirred the depths of feeling in all ranks and classes, and an army of orators rose into public view at once, to fan the flames of discontent into a conflagration that ultimately consumed the loyalty of the colonists, and left their original sturdy independence of character to assert itself in political separation. The eloquence of Otis, of John Adams, Patrick Henry, Samuel Adams, of Pinckney, of Rutledge, and others, live for us only in the effects they produced, and of which our institutions are the manifestation. Unhappily there were then no means of reporting by which those soul-stirring speeches could be preserved, and we have but a few sketches of Fisher Ames and Patrick Henry. While those illustrious men roused the nation with their voices, numbers aided with their pens; among these, Thomas Paine's pamphlet, "Common Sense," and his series of tracts entitled "The Crisis," produced a marvellous effect. The papers in themselves, at the present day, give no evidence of great ability, but they were fitted to the epoch with extraordinary aptness; and tradition assures us that each, on its appearance, produced a *furore* difficult to conceive. The epoch was one of intense excitement; and those papers held up clearly the dark side of kingcraft to a people in whose minds republicanism was making rapid growth. The pamphlets and papers that circulated at that period were, some of them, marked with great learning and power. The correspondence then carried on among public men, and which has since been collected and given to the public, surpasses in learning, political sagacity, grace of diction, vigor of thought, and power of expression, any thing of the kind that ever before appeared in any country. We, that read those papers by the light of seventy years of subsequent history, are better able to appreciate the extraordinary ability they evince. The letters of Franklin, Jefferson, Jay, Adams, Washington, Morris, and others, will, while the nation lasts, be preserved as models of literary excellence. The publication of the "Federalist" was an era in political writing; the work was the joint production of Alexander Hamilton, James Madison, and John Jay. The papers were signed "Publius," and their object was to urge the importance of union in the adoption of the constitution. The statesmen of Europe regarded the work with admiration; and the *Edinburgh Review* remarked: "It exhibits an extent and precision of information, a profundity of research, and an acuteness of understanding which would have done honor to the most illustrious statesmen of ancient or modern times." In his work on "Democracy in America," De Tocqueville remarks that "it ought to be familiar to the statesmen of every nation." If the reader of the present day is struck with the clear-sighted sagacity that the papers evince, how much greater is our admiration when we reflect that those statesmen were reared in our colonial state, without any of that experience which has shed its light upon us. The wisdom they displayed was the result of their own profound deliberation. The writings were an interchange of views between a race of intellectual giants who were giving birth to a nation. The works of James Madison comprise fifteen octavo volumes of 600 pages each, and are distinguished for soundness of reasoning, and great sagacity. The report of Hamilton, as secretary of the treasury, on banks and manufactures, was of great celebrity; and, as far as it described the existing state of affairs, was valuable. It is to be borne in mind that he was one of a race of Titans who were organizing a nation of a kind that never before existed; and if the views he advocated have not been justified by the experience that the nation has wrought out in the last seventy years, it is not surprising; nor can his great wisdom be taxed on that account any more than the vast ability of Patrick Henry be questioned because he opposed the new constitution. The writings of Jefferson, the statesman and patriot, were of a nature more durable and statesmanlike than the effusions of Hamilton, which were more the products of a subordinate executive officer than a directing head. The pen which wrote the Declaration

of Independence and the state papers, wrote, also, the "Notes on Virginia," the autobiography, correspondence, and Anas, included in the four volumes of his works published after his death by Mr. Randolph. Of the same age as these eminent statesmen, was John Marshall, the celebrated chief justice of the United States. Judge Marshall appeared as an author in 1805, when he published his "Life of Washington." The introductory volume, being a "History of the Colonies planted by the English on the Continent of North America," was published separately in 1824. In 1832 an abridgment of his "Life of Washington" appeared. Mr. Marshall occupied the posts of minister to France and secretary of state, and his state papers commanded admiration as of the very highest order. His appointment and career as chief justice seems to have been one of those special providences that have so often manifested themselves on behalf of the United States as a nation. The powers of the Supreme Court are such as were never before, by any people, confided to a judicial tribunal. It determines, without appeal, its own jurisdiction, and that of the legislature and the executive. It is not merely the highest court in the whole country, but the constitution of the country is in its hands. This tribunal was to decide upon every question that should arise under the new constitution, in relation to all the rights and powers of each department of government, and also those of all the states. A want of ability or of integrity upon the part of the court, possessed of such power, might, by vicious interpretation, have destroyed the whole fair fabric that had been raised with so much care and wisdom. This immense responsibility devolved upon John Marshall, and nobly did his great capacity and sterling integrity meet the occasion. During thirty-four years, that great man decided every question that arose; and, so to speak, fairly launched the constitution and government upon the stream of time.

Cotemporary with Judge Marshall, upon the supreme bench, was Joseph Story, who, born in Massachusetts in 1779, was appointed in 1811, and held the office until his death in 1845, a period of thirty-four years, during twenty-four of which he was associated with Judge Marshall, and displayed talents worthy of such a colleague. His literary writings were published in 1835, comprising sketches of eminent men, and other papers.

The eminent statesmen who have adorned the literature of their country, have been many. Henry Wheaton, Esq., who was born in 1785, served the country in many capacities. He published the most complete work on international law, in 1835. John Quincy Adams, one of the most remarkable men of the country, was born in Braintree, July, 1767, while his great-grandfather, who was born in the reign of Charles II, yet lived. Mr. Adams graduated at Harvard College in 1787, just 100 years after the birth of his great-grandfather. He chose the law as a profession, and began to write for publication over the signature of "Publicola." He replied to some portions of Paine's "Rights of Man." Washington appointed him minister to the Netherlands from 1794 to 1801. He had, also, appointed him to Portugal, but while on his way, his destination was changed to Berlin by the accession of his father to the presidential chair. While in Berlin, Mr. Adams became acquainted with German literature. A series of letters at this period to his brother in Philadelphia, was afterward published. They were of high interest. Subsequently, he was a member of the Massachusetts legislature, and professor of oratory at Harvard University. He was appointed minister to Russia by President Madison. From thence he was transferred to Ghent, to negotiate peace in company with Messrs. Bayard, Clay, and Gallatin. Afterward, he was appointed minister to St. James. He was eight years in the cabinet, and four years president. In 1831, he was sent to the House of Representatives, where he remained until his death, in 1848. He filled more of the high offices of government, than any other man in the country. The largest portion of his published writings consists of orations and miscellaneous discourses of a high character. He gave to the world some essays upon Shakspeare; also, translations from the German of Wieland. In 1832 he published "Dermot Mac Morrogh; A Tale of the Twelfth Century," with some shorter poems, chiefly lyrical. All the writings of Mr. Adams display the most mature scholarship, but the statesman seems to have overshadowed the man, since it is probable that from a less eminent person they would have been more highly considered.

William Wirt was born in 1772, at Bladensburg, Maryland, and became a lawyer in 1792, in which profession he was eminently successful. In 1802, he wrote the

"British Spy," which had a great success. In 1807, he earned a great reputation by his famous speech in favor of Blennerhasset. He produced many works before he gave to the world his extraordinary "Life of Patrick Henry" in 1817. That work has an enduring reputation.

Daniel Webster, that type of New England intellect, was born in 1782, in the same year with Audubon, the great American naturalist. He was a New England farmer's son, of Salisbury, N. H., and pursued learning with the indomitable energy of his race—teaching school as he himself acquired learning—forcing his way to notice, until he acquired a world-wide reputation. His earliest literary performance was in 1806, when 24 years of age, being a Fourth of July oration. He was a contributor to the *North American Review*, and his orations on different occasions were eagerly read in every section of the country. No speeches were more fraught with wisdom and eloquence, or had greater influence upon the public mind, since, being models of their kind, many are daily read in the public schools. He is so thoroughly American, and so in earnest in his expositions of the constitution, that his name, to use his own expression, must ever have an "odor of nationality." He speaks always to the understanding, and always with effect.

In the same year in which Webster was born, South Carolina gave birth to her great statesman, John C. Calhoun. He was born in Abbeville district, in March, 1782. He graduated at Yale College in 1804, and began the study of law, in which he attained great success. In 1809, he was elected to the state legislature. In 1811, he was elected to the House of Representatives, immediately taking a foremost post, until 1817, when he became secretary of war under Mr. Madison, and so continued eight years. Subsequently, he was twice elected vice-president, the last time in 1828. He soon resigned for the Senate, where he continued until his death, in 1850. Mr. Calhoun was one of the most extraordinary men of the country, and one of those whose works will live far into posterity. His eloquence was of a most refined cast, and distinguished for its compact reasoning. He was possessed of that quickness of perception and subtleness of argument, which made Jonathan Edwards the first of theologians. His works have been collected since his death, in six volumes.

Cotemporary with Webster and Calhoun, were the great orators, Clay, Mangum, and others, whose speeches belong to the standard literature of the country, but who have not contributed to it directly by writing. Thomas H. Benton, the great Missouri senator, was born in North Carolina in 1782, and pursued the study of law. In his "Thirty Years' View" of the American government, he has contributed a work of great value to the historical literature of the country. That great work is not only a faithful record of the political history of the country for the thirty years, but the clear Saxon style in which it is composed, gives it a charm seldom found in similar productions. When this work was completed, he commenced the task of condensing, reviewing, and abridging the debates of Congress, from the foundation of the government, which he lived to bring down to the compromise measures of 1850. With a strong intellect and bold character, Col. Benton was well calculated to dominate in the western states. In Missouri, at one time, his power was boundless.

The brothers Everett have deservedly occupied a high place among the literary men of the country. The elder, Alexander, was born in 1790, in Boston. He graduated at Harvard in 1806, and pursued the profession of law, but filled many offices of public trust, being minister to China at the time of his death, in 1847. During his life, his attention was never long diverted from literature, and his writings were numerous in the *North American Review*, of which his brother, Edward, was editor, and elsewhere. Edward Everett was born in 1794, and graduated at Harvard in 1811. He began the study of law, but adopted theology, and at 19 years was called to the Brattle street church, Boston, to fill the vacancy caused by the death of Mr. Buckminster, one of the most remarkable orators of modern times. He soon after was elected Greek professor at Harvard. While filling that office, he published some school books. In 1820, he became the editor of the *North American Review*, to which he largely contributed. He became member of Congress, and afterward governor of Massachusetts. He was minister to England, president of Harvard College, and United States senator. Like his brother of opposite politics, he has enjoyed a succession of offices, and was, in 1860, the candidate of a large party for the vice-presidency. When Lord

Macaulay, from over occupation, declined to add a memoir of Washington to the many brilliant biographical papers he prepared for the new edition of the "Encyclopædia Britannica," he suggested to the publishers of that work, that his friend Edward Everett would be the very man to execute the task; the counsel was adopted, and Sheldon & Co., of New York, obtained permission to bring out this memoir in a separate volume, which has just been accomplished. It may be said of Mr. Everett, that he has been perfectly successful in every thing he has undertaken, and his reputation is world wide.

John P. Kennedy, of Baltimore, was born in 1795. He pursued the law as a profession, until he entered Congress. He is one of the most genial and popular of writers. He is, perhaps, best known as the author of "Horse Shoe Robinson," in 1835, and "Rob of the Bowl," published in 1838, followed by "Annals of Quodlibet," in 1840. His delineations of nature are truthful, and his character drawing marked with great delicacy and freedom.

Hugh S. Legaré was born in South Carolina, in 1797, and graduated at the South Carolina College, following the law as a profession. In 1820, he was sent to the state legislature, and subsequently was appointed attorney-general of the state, was made chargé d'affaires at Brussels, and chosen to Congress in 1836. His contributions to the *New York Review* gave him a high literary reputation. In 1846, a collection of his writings was published in Charleston, establishing his high reputation as of the first class of intellects.

There are a number of others of our statesmen and political men, who have contributed by their writings to the literary capital of the country, but we have here selected only the most prominent of them.

Of those who have made literature a profession, Charles B. Brown seems to have been the first. He was born in 1771, in Philadelphia, and was of very early promise. In New York, in 1793, he was introduced to a literary society, which numbered among its members James Kent, afterward chancellor, Dr. Mitchill, Dunlap, Bleecker, and others. In 1797, he published a work on the rights of women, which then found less favor than some writers on the same subject have more recently experienced. He published, subsequently, a number of works that met with no very great success.

A year younger than Daniel Webster was Washington Irving, he having been born in 1783. Mr. Irving, "the prince of story tellers," is the admitted leader of American literature. His first publications were in 1802, over the signature of Jonathan Oldstyle, Gent., in the *Morning Chronicle*, of which his brother was editor. In 1806, in connection with James K. Paulding, he began writing "Salmagundi." This created a great sensation. It attacked, with amusing ridicule, the ignorance, presumption, and vulgarity of the British tourists, and satirized pretenders at home and abroad in a most effective manner. He soon after commenced the "History of New York, by Diedrich Knickerbocker," which must ever remain the finest monument of his genius. He was connected in business with his brothers, and upon the failure of the firm, he was, happily for the public, forced to depend upon literature for support. His next production was the "Sketch Book," published in New York and in London, in 1819-20. Its success was great at home and abroad, fully establishing the fame of the author. From that date, his works appeared at pretty regular intervals, although he was absent from the country seventeen years, up to 1832. Soon after, he purchased the old mansion of the Van Tassels, on the Hudson, near "Sleepy Hollow." He then resumed his literary labors until his appointment as minister to Spain, in 1841. He returned, in 1846, to his residence, and remained there until his death, still continuing, at times, to add to the list of his productions, the last of which was the "Life of Washington," which has had a sale probably as extensive as all the rest of his works, and the aggregate of which will exceed half a million volumes. It may be said that he has been one of the most successful of authors.

James K. Paulding, the colleague of Irving in "Salmagundi," was four years his senior, having been born in 1779, in the town of Pawling, on the Hudson. Notwithstanding the great success of "Salmagundi," the publisher refused to remunerate the writers, and it was brought suddenly to a close. In 1813, Mr. Paulding published a satirical poem, called "The Lay of a Scotch Fiddle," and in 1816 the most humorous of his satires, "The Diverting History of John Bull and Brother Jonathan," was published. His works were numerous up to 1831, when the "Dutchman's Fireside" appeared, meeting

with great success. It is called the best of his novels. This was followed by "Westward, Ho!" in which his characters are drawn with great truth and vigor. His sketch of the Kentucky hunter in his comedy of "Nimrod Wildfire," has met with great popularity. In 1837, Mr. Paulding became secretary of the navy under Mr. Van Buren. On his retirement he resumed his pen, and some of his later productions were contributions to the *Democratic Review*. All the works of Mr. Paulding would probably reach some thirty volumes. His works evince great descriptive power, skill in character drawing, with much humor and a strong natural feeling running through them all.

James Fenimore Cooper, the most widely known of American novelists, as well as the most distinguished, was born in 1789, at Burlington, New Jersey. He became a student in Yale College in 1802, in the same year with John C. Calhoun. On quitting college, in 1805, he entered the navy as a midshipman, for which position his daring and open-hearted nature seemed to fit him. He was very popular in the service, and a most promising officer, when, after six years of sea service—more than many old officers see in a whole life-time—he resigned, married, and finally retired to Cooperstown, N.Y. His first work was "Precaution," which had success, but not that eminent success that attended his subsequent works. His next work was the "Spy." This was decidedly the best historical romance ever written by an American, and its success was immense. Notwithstanding many attempts of the press to speak slightly of it, it created a *furore* in the public mind, and imparted an immense impulse to literature. The work was immediately republished in all parts of Europe, and it demonstrated the fact that everybody read "an American book," since even in England it rivalled the Waverley Novels in popularity. A few years before his death, Mr. Cooper received information that it had been translated into the Persian, Arabic, and some other oriental languages. When it is remembered that this story was a life picture of the struggle for independence, the effect of such a wide-spread circulation among readers under every form of government, may be estimated.

In 1823, the "Pioneers" made its appearance, commencing that series of Leather-stocking tales that will last while the country stands. The next work of Mr. Cooper's opened the series of his sea tales, in which he stands confessedly without a rival. Those two lines of romance, the American forest and the domain of Neptune, Mr. Cooper made peculiarly his own, and they both illustrate scenes peculiarly American. The "Pilot," it is said, originated in the fact that the "Pirate" of Sir Walter Scott having recently appeared, the conversation turned upon the faultiness of the sea delineation, and Cooper undertook to write a sea story in which the seamanship could not be criticised, and the "Pilot" resulted. Its success was unbounded. The next work was "Lionel Lincoln," a story of the war during the British occupation of Boston, and although it was quite equal to the "Spy," yet for some reason did not take with the public in so great a degree. In 1826, the "Last of the Mohicans" was produced, and it had a success from the first, greater than any novel had ever before had. It was purely original, introducing for the first time upon the field of literature, that race of men of whom but a few years will leave only the tradition. In the "Pilot," a real seaman for the first time came upon the stage, in the person of Paul Jones; and in the "Mohicans," the red man made his *début* in the person of Uncas. Mr. Cooper immediately took rank in England as one of the first romance writers of this, or any other age. Like the "Spy," it was reproduced in every language of Europe. The "Prairie" appeared next, while Mr. Cooper was in Europe, and it carried the reputation of the writer to a still higher point. That work was succeeded by the "Red Rover," which was followed by the "Water Witch." The labors of Mr. Cooper continued up to 1839, when his "History of the American Navy" appeared. It had a great and deserved success. It is a noble monument to the gallant service which, springing from the bosom of a newly formed country, successfully grappled with the tyrant of the seas, and demonstrated to the world that a new power had arisen to redress the balance of the old upon the ocean. There followed this work a continuation of the Leather-stocking tales, in the "Pathfinder" and the "Deerslayer," both of which sustained the high reputation of the series. The complete works of Mr. Cooper embrace a great number of volumes. Not all of them are of the high grade of those which have given him a world-wide character. There is not

a language in Europe into which they were not all translated as soon as they appeared in London. The readers of books in South America, in India, throughout England, and in Russia, are familiar with the name of Cooper, even where America is only known as his home. The world has no author whose fame, while living, was so universal as Cooper's. This fact is the conclusive answer to the sneering English critic, who asked, "Who reads an American book?"

James Hall, born in Philadelphia in 1793, has made many contributions to the national literature. He is the author of "Legends of the West," "A History of the Indian Tribes of North America," "The Wilderness and the War Path." The works are creditable.

The years 1804 to 1810 were prolific in the production of authors. No less than ten distinguished writers were born in those years: Theodore S. Fay, Geo. B. Cheever, Chas. F. Hoffman, C. M. Kirkland, Nathaniel Hawthorne, N. P. Willis, H. W. Longfellow, W. G. Simms, Joseph C. Neal, S. M. Fuller. Mr. Fay was educated for the New York bar, and published first, in 1832, "Dreams and Reveries of a Quiet Man," and essays written for the *New York Mirror*, in which he was associated with Willis, Gen. Morris, Rufus Dawes, etc. His novel of "Norman Leslie" is better known. In 1837 he produced the "Countess Ida;" subsequently, "Hoboken; a Tale of New York." He has spent most of his life abroad, under government appointments.

Rev. Dr. Cheever was born in Maine, and now presides over a Congregational church in New York. He has twice visited Europe, and on each occasion has published some works, and made other contributions to literature.

Charles F. Hoffman was born in New York, where he graduated at Columbia College, and commenced the study of the law. He began his literary career as editor of the *New York American*, associated with Charles King, Esq., since president of Columbia College; and in 1835 he published "A Winter in the West," which met great success, as well in London, where it was published, as in New York. This was followed by "Wild Scenes in the Forest and the Prairie," and subsequently by "Greyslaer."

Mr. Hoffman was the first editor of the *Knickerbocker*. In 1843 he published "The Vigil of Faith;" and many songs and essays appeared afterward.

Nathaniel Hawthorne was born in Salem, and graduated at Bowdoin College, in Maine, in the class with Longfellow, in 1825. Franklin Pierce graduated a year before him. In 1837 he published "Twice Told Tales," that had previously appeared in periodicals, in book form. In 1846 a new collection of his magazine papers was published, under the name of "Mosses from an Old Manse." He had a custom-house appointment in Boston, under Collector Bancroft; and subsequently joined the Fourierite community at "Brook Farm," Roxbury. Afterward appeared "The Scarlet Letter," and "The House of Seven Gables," which confirmed his rank as one of the great masters of romance. He is one of the most distinguished of American writers; and was appointed consul to Liverpool by President Pierce. In 1851 he published "True Stories from History and Biography;" in 1852, "The Snow Image;" in 1853, "The Wonder Book;" and in 1859 "The Marble Faun."

N. P. Willis is a native of Portland, but went early to Boston; whence he went to Yale College, where he graduated in 1827. He was then engaged by S. G. Goodrich, since known as "Peter Parley," to edit "The Token." About the year 1830 he was appointed *attaché* of the American legation at Paris; in which capacity he collected the materials for "Pencillings by the Way," which was first published in the *New York Mirror*. In 1839 he was one of the editors of the *Corsair*, which was short-lived. In 1840 an illustrated edition of his poems was published, and his "Letters from under a Bridge." In 1843, he, in connection with Geo. P. Morris, revived the *Mirror*, which lived but a few months. In 1846, he, with Mr. Morris, commenced the *Home Journal*, which continues to flourish. Mr. Willis has a wide reputation at home and abroad. While he wins the admiration of the most refined taste, he enjoys the widest popularity. He commands more of the public sympathy than, perhaps, any other writer.

Henry W. Longfellow is also a native of Portland. He graduated at Bowdoin College, and commenced the study of the law; but abandoned it for a professorship of modern languages in Bowdoin College, which office he assumed in 1829. He speedily won the reputation of a most graceful poet, as well as of an accomplished scholar. In 1836 he was called to the professorship of modern languages at Harvard

College, which he has since retained. In 1833 he published his translation from the Spanish of the *Coplas* of Don Jorge Manrique. In 1835 he published "Outre-Mer," and in 1839 "Hyperion; A Romance," followed by other poems, which were all collected in the complete edition of 1846. The merits of Mr. Longfellow as a poet, are of the highest order. They have that natural impression which finds a response with the rudest as well as the most cultivated. Some of Mr. Longfellow's poems have had an unusual success. The poem of "Hiawatha" circulated to the extent of 45,000 copies; and the "Courtship of Miles Standish" acquired great popularity.

William G. Simms is a native of Charleston, South Carolina, and became a lawyer in that city. When only eighteen years of age, however, he published his first poems, lyrical and others. These were followed, successively, by "Early Lays," "The Vision of Cortes," and, in 1830, by the "Tri-color." When of age he became the editor of the *Charleston Gazette*, which was unsuccessful. In 1832, while travelling at the north, he wrote, at Hingham, Massachusetts, his chief poem—"Atalantis; A Story of the Sea." This was followed by the stories of "Martin Faber;" "Guy Rivers; A Tale of Georgia;" "The Yemassee; A Tale of South Carolina;" and these by a great number, making altogether, of poems, nine volumes; historical romances, nine volumes; revolutionary stories, eight volumes; history and biography, six volumes; essays, four volumes; reviews, two volumes—comprising fifty volumes in twenty years, besides many smaller writings. Mr. Simms is a writer of great power, and his stories possess great interest, particularly in the Indian and Negro characters. His descriptions of southern border scenery are animated and natural. The stories have unity, completeness, and strength.

Joseph C. Neal was born in Greenland, New Hampshire. He was first known as the editor of the *Pennsylvanian*, of Philadelphia, in 1831, from which he retired in 1841. After a visit to Europe he started *Neal's Saturday Gazette*. The work by which he is most generally known—"Charcoal Sketches; or, Scenes in a Metropolis"—was published in 1837. In this work he drew, with great power and spirit, the lower classes of a great city. Many large editions of this work were sold, and it was reprinted in London, under the supervision of Dickens. In other composition, Mr. Neal's style is graceful and attractive.

T. B. Thorpe, born in Westfield, Mass., in 1815, settled in Louisiana, and afterward in New York. He is the originator of a class of stories full of humor, and sketched with a bold and original hand. The first of them appeared in Philadelphia in 1835, and was called the "Big Bear of Arkansas," followed in 1846, by "The Mysteries of the Backwoods," "Captain Simon Suggs," etc. These were exceedingly popular, although much of the humor was not of a very delicate character. He has daguerreotyped one of the phases of American life that is rapidly passing away with the progress of settlement on the frontiers. The truthfulness of the portraits will make his works interesting as matters of history.

The clergy have contributed largely to the general literature of the country, apart from merely theological productions, and always with effect; of these, Dr. Dwight was the leading writer. Timothy Dwight was born in Northampton, Mass., in 1753, and graduated at Yale College in 1769. He held various clerical offices until he was installed president of Yale College in 1795, which office he held until his death in 1817. In 1774, he published an epic poem, "The Conquest of Canaan." This was followed by many others, which did not raise his reputation to the level he acquired by his prose writings. He published "Travels in New England and New York," in 4 vols. During the summer vacation of the college, he travelled, collecting information, historical and statistical, which will ever be matter of interest.

Timothy Flint was born in Reading, Mass., in 1780, and graduated at Harvard College, after which he was settled as a minister, but soon departed for the west, where he collected those materials that formed the basis of "Recollections of Ten Years in the Valley of the Mississippi," which were published in 1826. The success of this work was so great as to induce him to make literature his profession. His next work was "Francis Berrian; or, the Mexican Patriot." He published the "Geography and History of the Mississippi," in 1827, in Cincinnati. Those works were followed by many others, and in 1833, Mr. Flint had charge of the *Knickerbocker Magazine* for some time, after which he removed to Cincinnati and continued there until his death. His great merit is in his descrip-

tions. His landscapes are uncommonly true to nature.

William E. Channing was born at Newport in 1780. He graduated at Harvard in 1798, Judge Story being his classmate. On leaving college, he became a tutor in a family of Virginia. He was ordained pastor of the Federal street church in Boston in 1803, and he continued there until his death in 1842. His earliest publications were theological, particularly one on the "Unitarian Belief," in 1819, which excited great attention. In 1823 he published an essay upon "National Literature." This was followed by "Remarks on the Life and Character of Napoleon Bonaparte." This was not of a sort much to raise his reputation, however. The address delivered in Boston, on "Self-Culture," in 1838, was regarded as one of his best efforts. Then followed many others. Although Dr. Channing has had a living reputation at home and abroad, his written works will also sustain it with posterity.

Joseph S. Buckminster was born at Portsmouth in 1784. He graduated at Harvard in 1800, and became the pastor of Brattle street church in 1805, and after much illness, died in 1812, with a great reputation for eloquence and literary genius.

Andrews Norton was born in Hingham in 1786, graduated at Harvard in 1804, and became a tutor in Bowdoin College. He published many able works, with some poems.

Horace Bushnell was born in Connecticut in 1802, and graduated at Yale College in 1824. At one time, he was literary editor of the *New York Journal of Commerce*; in 1833, he presided over a Congregational church in Hartford. The first of his theological works was published in 1847, and subsequently he published many other works that were highly esteemed.

Orville Dewey was born in 1794, in Sheffield, Mass. He graduated at Williams College in 1814. He supplied the pulpit of Dr. Channing when that gentleman went to England. After being settled ten years in New Bedford, he became pastor of the Church of the Messiah in New York, and now resides in Boston. He published volumes at different times on various subjects; among others, in 1836, "The Old World and the New;" in 1838, "Moral Views of Commerce, Society, and Politics." Many other works were added to the list, of which complete editions have been published. He is one of the most popular pulpit orators that the country has produced, having no reference whatever to the class of sensation preachers, whose performances are half theatrical.

George Bush was born in 1796, at Norwich, Vt., and graduated at Dartmouth College. He was then the "chum" of Rufus Choate, who won much celebrity at the bar. Mr. Bush became a tutor in Princeton College, and subsequently obtained celebrity as a preacher. In 1827, he determined to consecrate his life to letters. In 1831, he was elected professor of Hebrew and oriental literature in the New York University. In 1832, he published the "Life of Mohammed." This was followed by his celebrated treatise on "The Millennium," taking ground that the millennium is past. Then followed many other works, until, in 1844, he published his "Anastasis; or, the Doctrine of the Resurrection of the Body rationally and spiritually considered." This work excited great attention and controversy. In 1845, Bush translated "Swedenborg's Diary" from the Latin, and avowed full belief in the doctrines of Swedenborg. This was followed by a work on Mesmerism.

Francis Wayland was born in the city of New York in 1796, and graduated at Union College. He was first settled over a Baptist church in Boston, but ultimately succeeded to the presidency of Brown University in 1827. His publications have been numerous on moral and scientific subjects, and he has contributed largely to the periodical press. The editions of some of his works have been very large: 12,000 were sold of his "Political Economy," and nearly 30,000 of his "Moral Science."

William Ware was born in 1797, at Hingham, Mass., and graduated at Harvard in 1816. He was soon after settled in a Unitarian church in New York. He commenced, in the *Knickerbocker Magazine*, in 1836, a series of papers, which were subsequently published together, as "Zenobia; or, The Fall of Palmyra, an historical romance." Then followed "Probus; or, Rome in the Third Century." "Julian; or, Scenes in Judea," appeared in 1841. The writings of Mr. Ware are graceful, pure, and brilliant in style.

Herman Hooker was born in Poultney, Vt., in 1807. Graduating at Middlebury College, he took orders in the Episcopal church, but, abandoning the pulpit, he resides in Phila-

delphia. He has given several works to the public, which have met with great success.

Orestes A. Brownson was born in Vermont in 1802. The early life of Mr. Brownson was obscure. He seems, however, to have been very erratic, but published several works, until, in 1838, he began the *Boston Quarterly*, and in 1840 he published a metaphysical novel called "Charles Elwood." He continued to write for many reviews, until, in 1844, he began *Brownson's Quarterly Review*, after having united with the Roman Catholic church. Since then he has met with success.

John James Audubon, the great ornithologist, was born in Louisiana in 1782. He was educated in Paris. On his return he immediately commenced the series of drawings, which, with the lapse of time, grew into "The Birds of America"—of which work Baron Cuvier remarked: "If ever it be completed it will have to be confessed that, in magnificence of execution, the old world is surpassed by the new." After encountering many vexations and disappointments, he succeeded in publishing, in 1830, his first volume, containing one hundred plates, representing ninety-nine species of birds; every figure of the size and color of life. The kings of France and England headed the subscription list; he was made a member of the Royal Societies of London, Edinburgh, and Paris, and the scientific world were enthusiastic in his praise. The second volume was published in 1834; in 1840 the fourth and last volume was completed. The whole comprises 435 plates, containing 1065 figures, from the bird of Washington to the humming-bird, of the size of life, and a great variety of land and marine views, carefully drawn and colored from nature. He had spent half a century in completing this marvellous work, and well might he say: "I look up with gratitude to the Supreme Being, and feel that I am happy."

After the completion of this work, he began the "Quadrupeds of America," which was also a marvellous production. His drawings exhibit a perfection never before attempted, and his pen is scarcely inferior to his pencil. When Buffon had completed the ornithological portion of his history, he supposed that he had described all the birds in the world, and remarked that the list "would admit of no material augmentation!" Yet his list comprised but one-sixteenth of those now known to exist. Mr. Audubon died in 1851.

Gulian C. Verplanck was born in 1785, in New York—a true representative of the Knickerbocker race. He graduated at Columbia College, and soon after obtained admission to the bar. In 1818 he came before the public in a literary character, in an address before the New York Historical Society. He became professor of the evidences of Christianity in the theological seminary of the Episcopal church, in 1820. Subsequently Mr. Verplanck, in connection with Mr. Bryant and others, formed a literary confederacy, contributing to the literary magazines and daily journals. At this time was published "The Talisman," mostly by Mr. Verplanck. He was for some years a member of Congress. In 1844–46, he edited a pictorial edition of Shakspeare, in which he fully sustained his high reputation.

Henry R. Schoolcraft was born in 1793, near Albany, and was early distinguished for his literary and scientific acquirements. He has contributed largely to the preservation of the history of the fast disappearing red races of the continent, and is a high authority on all that concerns their customs.

In the range of history, American writers have won the foremost position among historians of the present century; and Europeans admit the high reputation of American histories.

Jared Sparks was born in 1797, and graduated at Harvard College in 1815. He became then a tutor, and was subsequently ordained in the Unitarian church in Baltimore. His first historical work was the "Life of John Ledyard, the American Traveller." This met with some success, and in 1831, he published, under an order of Congress, the "Diplomatic Correspondence of the American Revolution," in twelve volumes. In 1832, he published the "Life of Gouverneur Morris," who was the American minister to France during the reign of terror. Between the years 1833 and 1840, he published in twelve octavo volumes the "Life and Writings of Washington." The memoir, by Mr. Sparks, contained in the first volume, was translated into French by Guizot, the minister of Louis Philippe. The whole work was translated into German, and published at Leipsic. In 1835, he published the complete works of Franklin. In this the autobiography of Franklin is continued to his death. Mr. Sparks also published two series in 10 and 12 volumes of the "Library of American Biography." In the preparation of these he was aided by the

brothers Everett, Prescott, Wheaton, and others. He also published a history of the American Revolution. In 1849, he succeeded Mr. Everett as president of Harvard College, but resigned in 1853.

William H. Prescott was born in 1796, at Salem; he was grandson of that Prescott who commanded at Bunker Hill. In 1814, he graduated at Harvard College, and entered upon the study of the law. At college, by an accident, one of his eyes was destroyed and the sight of the other much injured; this compelled him to give up his profession. He was possessed of a handsome income, $12,000 per annum, and he devoted himself to the study of the languages and literature of Europe, and contributed largely to the *North American Review*. Ten years thus passed in a kind of preparation for historical studies; ten years more passed in investigation, and "Ferdinand and Isabella" was the first splendid result of his pen. The materials for this had been sent him by Alexander Everett, when minister to Spain. The work of acquiring the contents of books and writing without the use of eyes was a severe labor, but overcome by ingenuity and patience. The work was everywhere hailed with enthusiasm. The foreign reviews were not backward in acknowledging its great merits, and it ran through four editions in London and twelve in the United States. It was republished in French, Spanish, German, and Italian; and in all countries there was but one opinion of its great merits, and it was recognized as a work for posterity. He was made a member of the Royal Academy of Madrid, and its rich collections, with those of the archives of Seville, placed at his disposal, and every reservoir of Spanish history laid open to him. The "History of the Conquest of Mexico" followed, and was succeeded by the "Conquest of Peru;" the "History of Philip the Second," and of "Charles the Fifth," which appeared successively, added to the high fame of Mr. Prescott. He died in the midst of his honors and usefulness. The histories of Mr. Prescott are among the finest models of historical composition, and are also *national* works.

George Bancroft was born in Worcester in 1800, and graduated at Harvard in 1817. He commenced the study of divinity, but changed his views for literature and learning. In 1834, he published the first volume of the "History of Colonization in the United States." By this his reputation was extended as a historian. He subsequently was appointed collector of Boston, and in 1844 he was appointed secretary of the navy, which post he resigned to represent this country at the Court of St. James. In all this time his great "History of the United States" progressed; each successive volume adding to the reputation of the writer. The eighth volume was published in 1860, bringing the history down to the Declaration of Independence.

William C. Bryant was born in Massachusetts in 1794. He contributed lines to the county gazette, when ten years old, and four years later he published two poems; when nineteen years old, he wrote what is still held one of the most impressive poems of the language, "Thanatopsis." He graduated at Williams College, and studied law. In 1825, he edited the *New York Review*, and in 1826, he became editor of the *Evening Post*, which he still edits. His works have been many, in both poetry and prose. His prose is remarkable for the purity and elegance of its style, which is free from all superfluous words or showy phrases.

The number of female writers has been large in the United States, as well of prose as poetry, and their works have at times had a very great sale, particularly of late years, when circumstances created such a demand for the work of one female writer as to stimulate others in the same direction.

The production of sensation books has become a sort of necessity of late years, from the high wrought feeling that has been engendered by various circumstances. These books excite the sympathies and carry away the imaginations of those who read to be beguiled from the pressing cares of the working-day world; and the number of them is not small. Although the moral tone of most of them is not to be commended, there is a class which takes higher ground and seeks to circulate moral lessons under the garb of fiction. A large portion of these works are written by American women; not to indulge in sickly sentiment or to court literary honors, but for the business-like and praiseworthy motive of supporting themselves and kindred, or, in homely phrase, to make "the pot boil." It follows, that under such circumstances, as a general rule, the staple of the narrative is wrought out from personal observation of nature and experience of life—whereby a certain amount of truth, and that practical and persuasive, imbues the story; not infrequently, too, these romances have a national flavor far more salubrious to the

young, than the foreign perversities of French and German novels, badly translated; there is a cleverness, a grace, and a certain artistic merit in not a few of the tales, which are highly creditable to our countrywomen, who seem to read character, describe society, invent plots, and indulge fancies with rare freshness and insight. The Messrs. D. Appleton & Co. have brought out a number of a very elevated moral character, and the number of these writers in all sections of the country increases. Not alone fiction, but literature in all its walks, has been adorned by American female genius.

Hannah Adams, born near Boston in 1756, was one of the earliest of American female writers. She early acquired a knowledge of Greek and Latin. During the revolutionary war she supported herself by making lace. In 1784, she published "Vienna," which had a ready sale. In 1799, she published with great success her "History of New England," and it acquired for her a wide reputation, but little profit. The latter part of her life was supported by an income derived from certain friends in Boston.

Catharine M. Sedgwick was born in Stockbridge, Mass., toward the close of the last century. Her first publication was the "New England Tale," in 1822, followed by "Redwood," in 1824, which had a great success. Her reputation was much increased by "Hope Leslie," published in 1827. To this followed "Clarence," and many others succeeded, each of which was a success. She was one of the first American ladies distinguished in the world of literature, and she has deservedly maintained a foremost position.

Eliza Leslie was born at the close of the last century, in Philadelphia. She was brought up in a famous cooking school, kept during thirty years by Mrs. Goodfellow; and Miss Leslie's experience was given to the world in a volume of seventy-five receipts that were highly popular. This was followed by a series of books for juvenile readers, and in 1833 she published "Pencil Sketches." This had much success, and was followed by several others; among them the "Life of John Fitch," the father of the steamboat.

Lydia M. Child was born in 1806; her first publication was "Hobomok; A Tale of Early Times," in 1824, and the success of that work prompted others, all of which added much to her literary reputation.

Caroline M. Kirkland was born early in the century, and early commenced a literary career which has reflected honor on the country.

Sarah Margaret Fuller was born in 1810, at Cambridge, and gave early evidences of a facility for acquiring languages; and in her ninth year she could write Latin verses. Her first publication was a translation from the German in 1839; subsequently she had charge of the literary department of the *New York Tribune* (daily paper). In 1845, she published her regrets at not being created a male, under the title of "Woman in the Nineteenth Century." She went abroad, and married an Italian, Marquis D'Ossoli; she was lost with her family, on the coast, on the voyage home, in 1850.

There are a number of female writers whose contributions to American literature rank very far above those of Miss Fuller; among them Mrs. Brooks, a native of Boston, styled by Southey the most imaginative of all writers; Mrs. Gilman, the authoress of "Love's Progress;" Miss MacIntosh, authoress of "Conquest and Self-Conquest," and other works; Mrs. Embury, Mrs. Sigourney, Mrs. Ellet, Mrs. Stephens, Mrs. Worthington, Mrs. Parton (Fanny Fern), all of whom have earned high reputation and reflected credit on the American character.

In view of the comparative ages of this country and Great Britain, it may be inferred from what has been already accomplished, that the foundation, so to speak, of American literature, has been but laid. The language is here being propagated in its purity by a race which doubles every twenty years. Among them, the elements of learning are universally distributed, and the desire for reading has grown, or rather outgrown the mechanical means of supplying it, vastly as these means have multiplied. That which strikes the foreigner here, is the almost perfect uniformity of the spoken language in all parts of the country, while hardly two counties of England have the same dialect. It is because here the language has spread under the hands of the schoolmaster, and there are no localities where people have grown up in ignorance, having continued with a traditional language only. The country has outgrown its colonial dependence upon the mother country, and has now a literature of its own—a literature which has not only forced its way into almost every department, theological, scientific, political, and historical, as well as in fiction and poe-

try, to the admiration of the old world, but it no longer depends upon foreign endorsement to win the applause of Americans. The works of the largest circulation and most popular character have found their way among the people without, in many instances, having been known at all abroad. The works of American authors are now in such demand, as to compel liberal terms from publishers. The question of international copyright sinks in significance before the fact that the public here demand home productions, and some American writers realize fortunes, notwithstanding that the supply of foreign books is as free as ever to the trade. The great future is among the millions of American readers. The population in this country now probably equals that of Great Britain. Among them the readers are at least double those of the British islands. In the next twenty years these will redouble what they now are, and with a well-developed American literature, British writers must direct their labors to the great future of the language on this continent.

PRINTING-PRESS.

CHAPTER I.

PRINTING PRESS—HANDPOWER—LIGHTNING.

If a middle-aged man now visits the press-room of a "crack" daily, and observes a huge machine, some 20 feet high, driven by a steam engine, delivering seven large newspapers, nicely printed, at every tick of a clock, and watches the piles of paper growing at the rate of 420 per minute or at that of 25,000 per hour, weighing over one ton, and reflects that the utmost power of the best machines of his youth would require an active man and a boy two long hours to do what this whizzing monster does in a minute, he will form some idea of the progress made in paper printing, and also of what is required to meet a daily demand. In the days of Franklin, the press-work of a paper was a very laborious affair. The machines of that day were very imperfect, and, if reference is had to the illustration on another page, contrasting the actual machine which Franklin used, and which is still preserved in the patent office at Washington, with the fast press now in use, a good idea will be formed of the progress in press building. In that press, it will be observed, the bed is a platform about three feet high, between two uprights. In the cross-piece at the top is a female screw, in which works the screw attached to the wooden platen. This screw being turned by the pressman, causes the platen to ascend and descend. There is, in front, a table, which slides over the platform at the will of the operator, who, to effect this, turns a crank. On this table was laid the type. Over the type was a frame, which encircled the type, or form, and crossed it in those places where the white margin appears in a printed paper. On this frame the paper of proper size was laid, after being "wet down;" another fold of the frame confined the paper; the whole was then slid on to the platform. The screw being turned, caused the platen to descend, and the impression was made. The screw was then raised, the form slid back, the frame raised, and the paper lifted and examined by the pressman to see if his impression was "good." If it satisfied him, he proceeded to ink his types for a new impression. The ink employed in printing is very different from that employed for writing, and much skill is required in the manufacture. It must be soft, adhesive, and easily transferred; it must dry quickly, and be durable, and not liable to spread. The usual materials are linseed oil, rosin, and coloring matters, lampblack being used for black ink. The peculiar mode of the best makers is somewhat of a secret. The old mode of applying it was by two ink balls, about the size of a man's hat, made of soft leather, and stuffed with cotton, the leather being nailed round a wooden handle. The pressman, taking one in each hand, daubed them with ink, and worked them together until he had spread the ink. He then applied them to

the types as evenly as possible; then, laying them aside, he proceeded, as before, to lay his paper evenly upon the frames, slide it up, work the screw, etc. By this process, an active man could work fifty sheets in an hour; by ten hours steady industry, he could get off an edition of 500 copies for the carriers in the morning. There was little room for much expansion under such a state of printing. The first great advance in the direction of speed, was when the lever was substituted for the screw in making the impression. This was introduced by Mr. John Clymer, and called the Columbian, or Clymer press, in which there was no screw, but the head itself was a large and powerful lever, acted on by proportionate levers, thus bringing to perfection, for presses of a large size, certain principles of leverage which had previously been patented in England, and used in presses of a small size, such as foolscap. The platen was, in fact, a fulcrum for the head, or great lever. Thus the fulcrum and lever superseded the inclined plane, or screw. Mr. Clymer went to England in 1817, and, at that time, the famous "Cobbett's Register" was printed on an "American press," a circumstance that was regarded as a great joke at the time. By this invention, two levers, one affixed at the cross-piece above, and one to the platen, were brought together by a joint, like the bent knee of a man's leg. At this joint was applied a lever, by which the pressman, with one pull, brought the joint into a perpendicular line, by so doing giving an instantaneous and powerful impression. The platen being suspended by spiral springs, instantly rose when the lever was released. The saving in time was immense, one pull of the workman being sufficient for all the old screwing and unscrewing. Improvements in the Clymer press were made by Peter Smith and Samuel Rust, and these improvements are combined in Hoe's Washington press, of which a cut will be found on another page. Inventions of a similar character were made by Mr. John Wells, of Connecticut. The principle of the lever has been applied in various ways, and contains the chief feature in press power. The form of lever now generally used, will be seen in the engraving of Hoe and Smith's printing press, which is the favorite for all work where power presses are not required. Next to the introduction of the lever, was the substitution of the inking machine for the old ink balls. This was constructed of a cylinder which revolved, by hand, against an ink trough, and, by so doing, received evenly over its surface the ink. The smaller rollers were constructed on a light frame, to which a handle was attached. These, laid upon the ink roller, received from it the ink, and then being pushed forward over the type, imparted it to them with one movement of the hand. This, worked by a boy, is seen in the engraving. The pressman was now relieved of the inking, and, working with a lever, he could print, with active industry, 250 sheets in an hour. The next movement was to make this inking machine self-acting, by attaching it to the press in such a manner that lifting the paper frame would cause it to act. The boy was now dispensed with.

In 1839, the Ruggles Job press was introduced, and is now extensively manufactured in Boston, on the site of the house where Franklin was born. The Combination press was introduced in 1854, and is manufactured by the Power Press Co. on a very large scale.

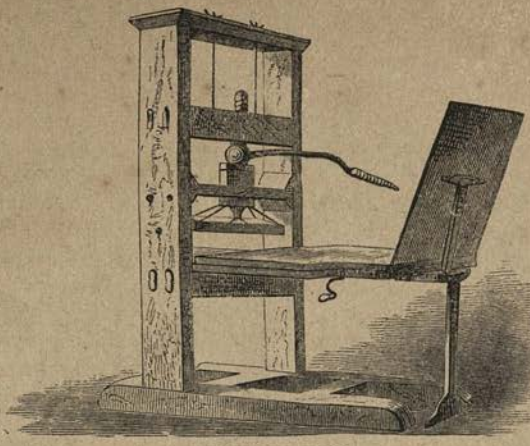
The next important improvement in the machines, was the introduction of the cylinder, or Napier press. In this machine, of which an engraving is presented in another column, the form of type is locked upon a strong iron table, which moves forward and backward, passing in its course under a cylinder, which, made of iron, is covered with a soft blanket, and provided with a set of fingers to seize the sheet as it is presented. Against this is inclined the feeding bench, on which is laid the paper. On the bench is a small brass peg, or pointer, against which the feeder brings the paper accurately, in order that the sheets may "register"—that is, each receive the type at the same distance from the margin. When the cylinder revolves, it raises with its fingers the edge of the paper, draws it round itself, and presses it against the type, which, at the same instant, passes under it. The paper then released by the cylinder, is carried by ribbons to the rear, while the type vibrates back, to return as soon as the cylinder has again drawn forward a sheet of paper. At first, a boy was required to fly the papers, or catch them as they were thrown back from the cylinder, and pile them up. This, by the self-acting flyer, as seen in the engraving, is now dispensed with. This machine raised the number that might be printed to between 2,000 and 3,000 per hour. The bed

is made of a size to take a paper from 25x33 inches, to one 40x60 inches. The cost of the former size is $1,390, and of the latter, $2,600. An obvious improvement suggested itself soon. The type, in moving forward and backward, made only one impression. It was easy to introduce another cylinder, in order to take an impression from the type on its return. This was the double cylinder, which delivers a paper at each end. The cost of these is, for the large size, $4,250, and it will give 3,500 to 6,400 impressions per hour. In this operation, the vibration of the type bed was the great difficulty. The type and bed will weigh over 1,000 lbs. This mass, moving backward and forward with great momentum, produced a great concussion, although it was met by strong springs which stopped its progress and aided its return. Many improvements were made in these springs. The noise and annoyance occasioned by the concussion of the bed against the springs, which are placed at each end of the machine to overcome the momentum of the bed, was removed by means of adjustable India-rubber buffers placed at the points of contact, which in no way interfere with the lively and certain action of the spiral springs. The same object is also effected by air springs, by which the head of the bed, plunging into a receiver, condenses the air, causing it to act as a spring.

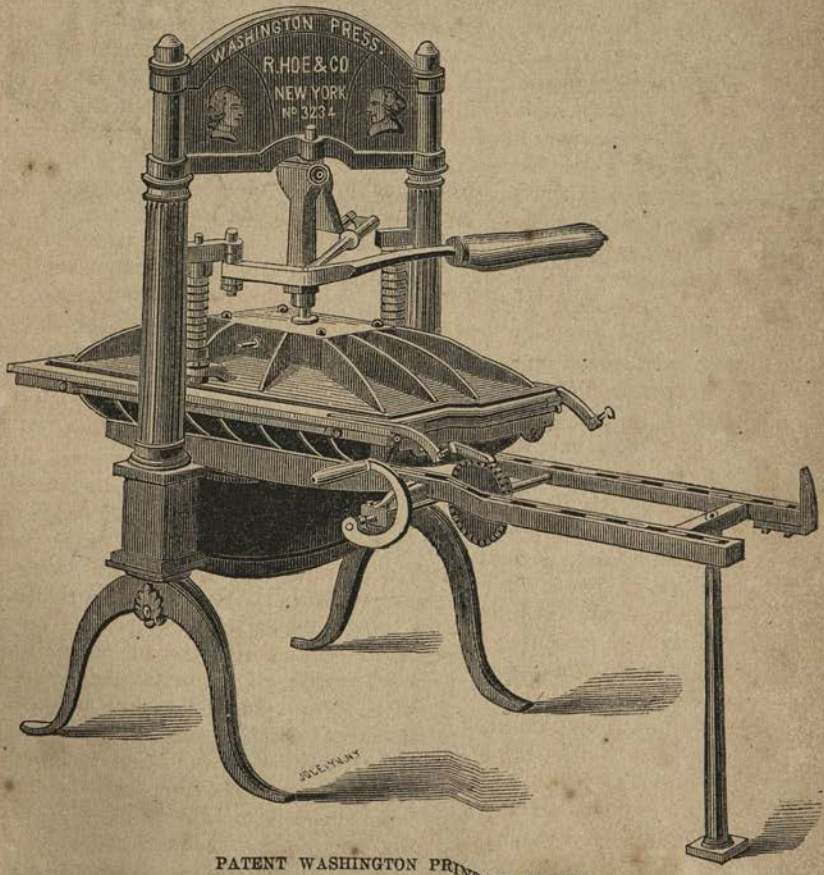
It was obvious, however, that the weight and concussion of this bed were a bar to further progress in this direction, and it was felt that greater speed could be attained only by causing the type itself to revolve. This was no new idea. It had been patented in England in 1790, but the inventor could not succeed in holding the types, since the rapid revolution of such a weight gives a powerful centrifugal motion. What they could not do in England, Richard M. Hoe did in New York, in 1847, after many attempts had been made to accomplish the desired result. In this machine, as will be seen in the illustration, the form of type is placed on the surface of a horizontal revolving cylinder of about four and a half feet in diameter. The form occupies a segment of only about one-fourth of the surface of the cylinder, and the remainder is used as an ink-distributing surface. Around this main cylinder, and parallel with it, are placed smaller impression cylinders, varying in number from four to ten, according to the size of the machine. The engraving represents three. The large cylinder being put in motion, the form of types is carried successively to all the impression cylinders, at each of which a sheet is introduced, and receives the impression of the types as the form passes. Thus, as many sheets are printed at each revolution of the main cylinder, as there are impression cylinders around it. One person is required at each impression cylinder to supply the sheets of paper, which are taken at the proper moment by fingers or grippers, and, after being printed, are conveyed out by tapes and laid in heaps by means of self-acting flyers, thereby dispensing with the hands required in ordinary machines to receive and pile the sheets. The grippers hold the sheet securely, so that the thinnest newspaper may be printed without waste.

The ink is contained in a fountain placed beneath the main cylinder, and is conveyed by means of distributing rollers to the distributing surface on the main cylinder. This surface being lower, or less in diameter than the form of types, passes by the impression cylinder without touching. For each impression, there are two inking rollers, which receive their supply of ink from the distributing surface of the main cylinder, which rise and ink the form as it passes under them, after which, they again fall to the distributing surface.

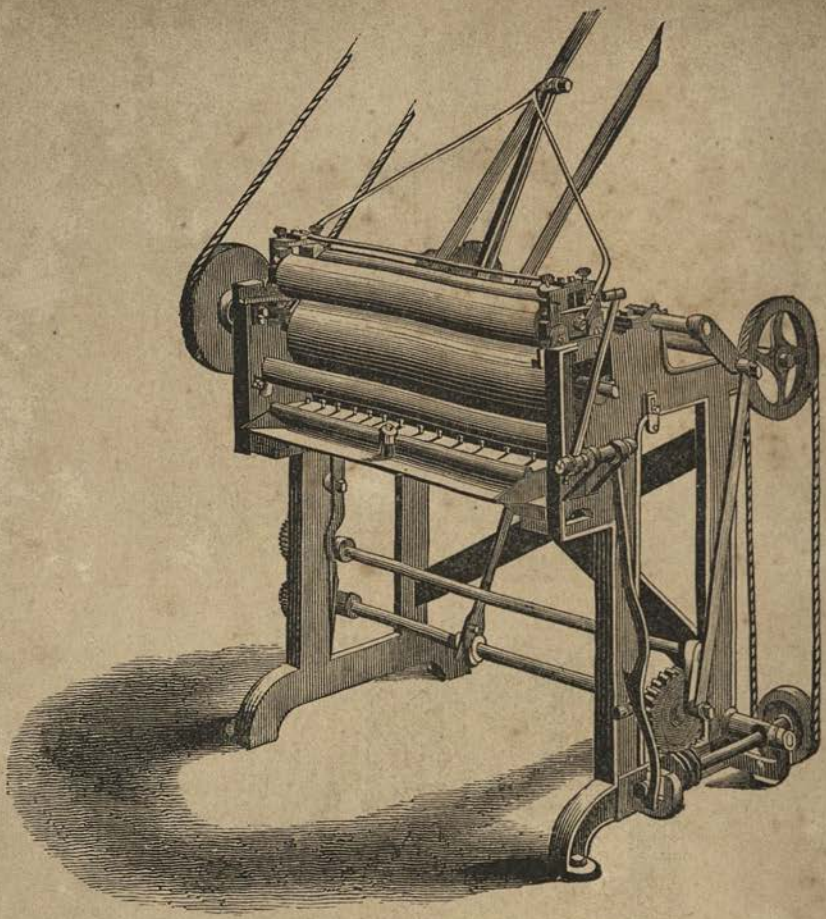
Each page of the paper is locked up on a detached segment of the large cylinder which constitutes its bed and chase. The column rules run parallel with the shaft of the cylinder, and are, consequently, straight, while the head, advertising, and dash rules, are in the form of segments of a circle. The column rules are in the form of a wedge, with the thin part directed toward the axis of the cylinder, so as to bind the types securely. These wedge-shaped column rules are held down to the bed by tongues projecting at intervals along their length, which slide in rebated grooves cut crosswise in the face of the bed. The spaces in the grooves between the column rules are accurately fitted with sliding blocks of metal even with the surface of the bed, the ends of which blocks are cut away underneath to receive a projection on the sides of the tongues of the column rules. The form of type is locked up in the bed by means of screws at the foot and sides, by which the type is held as securely as in the ordinary manner upon a flat bed—if not even more so. The speed of these machines is limited



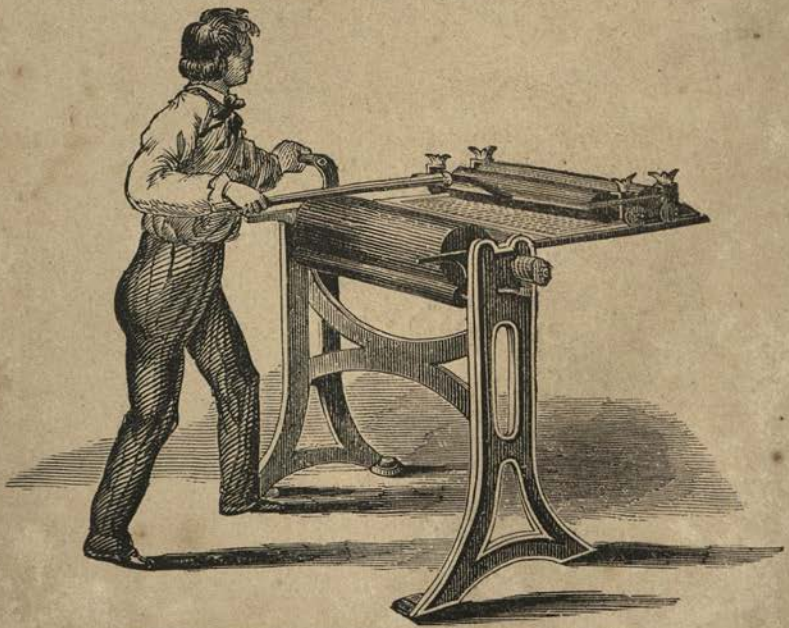
FRANKLIN PRESS.



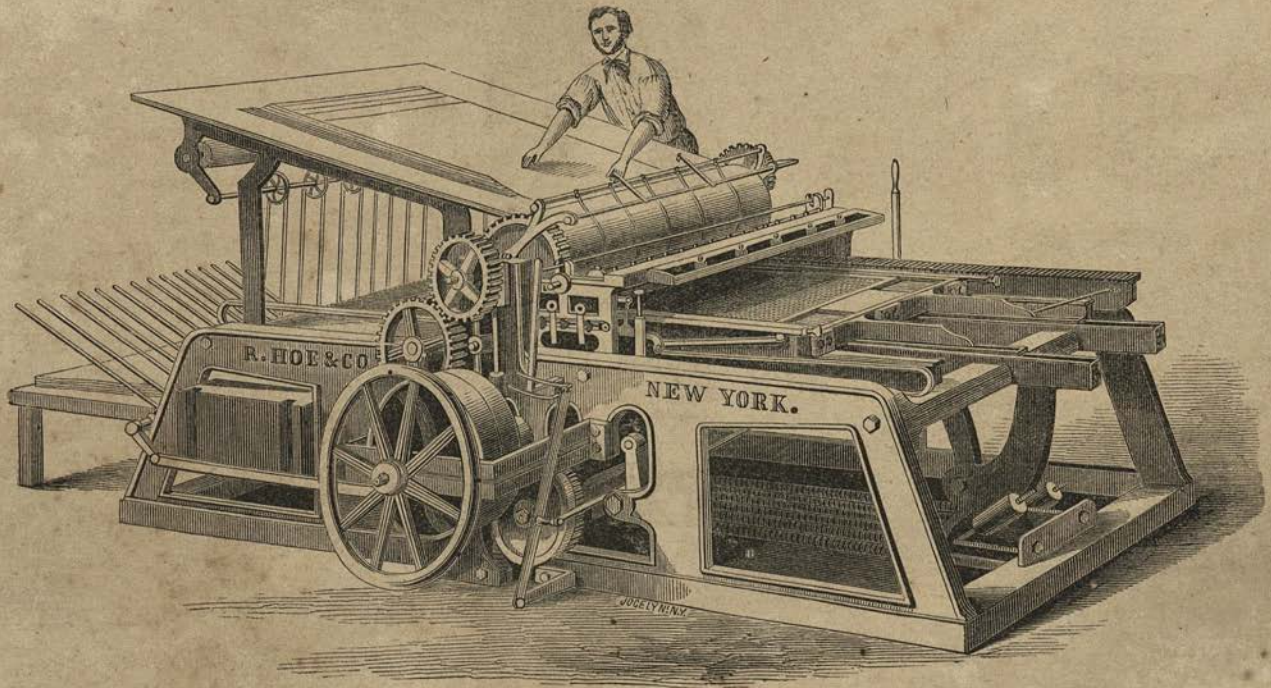
PATENT WASHINGTON PRINTING PRESS.



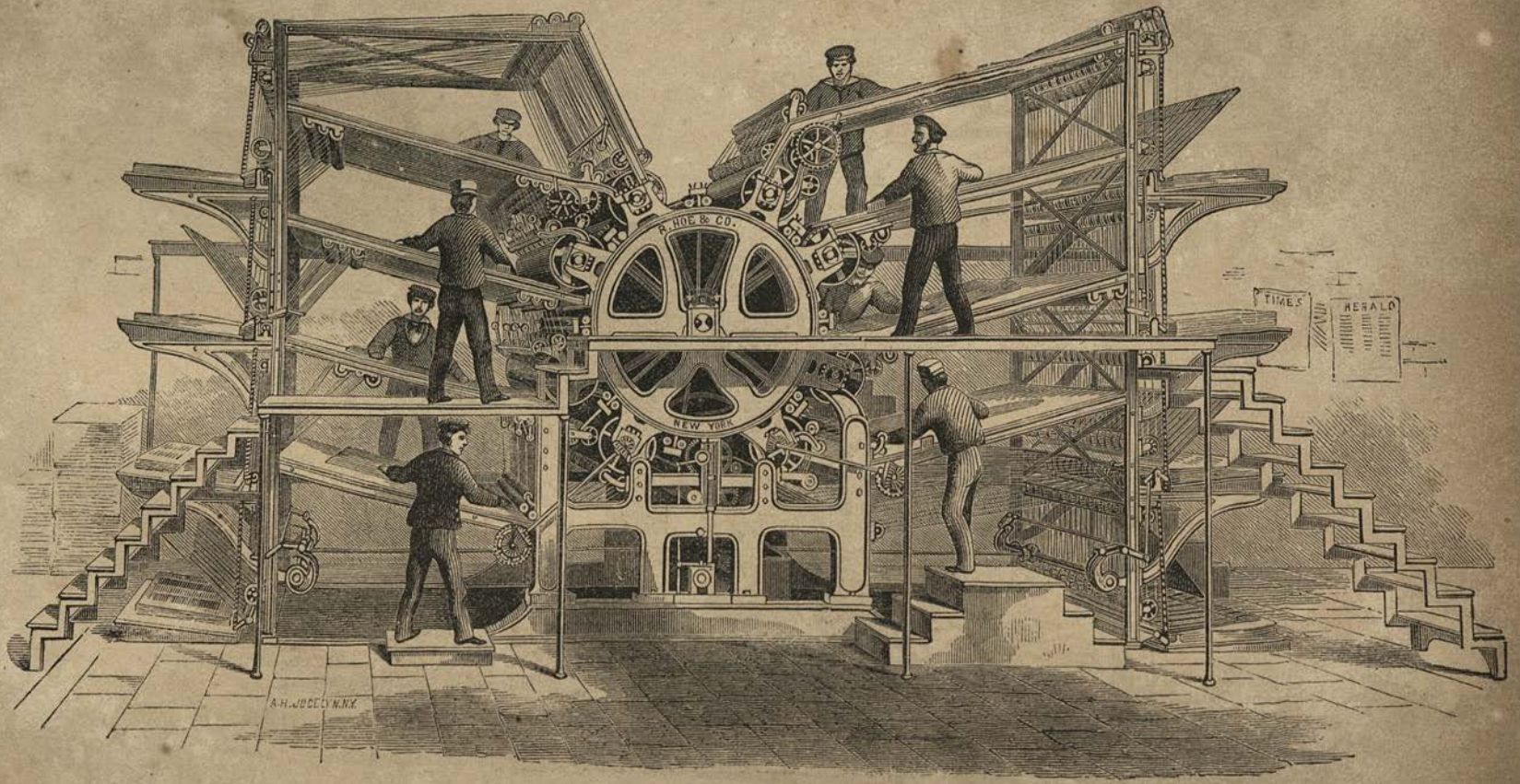
PATENT HAND-PRESS STEAM INKING MACHINE.



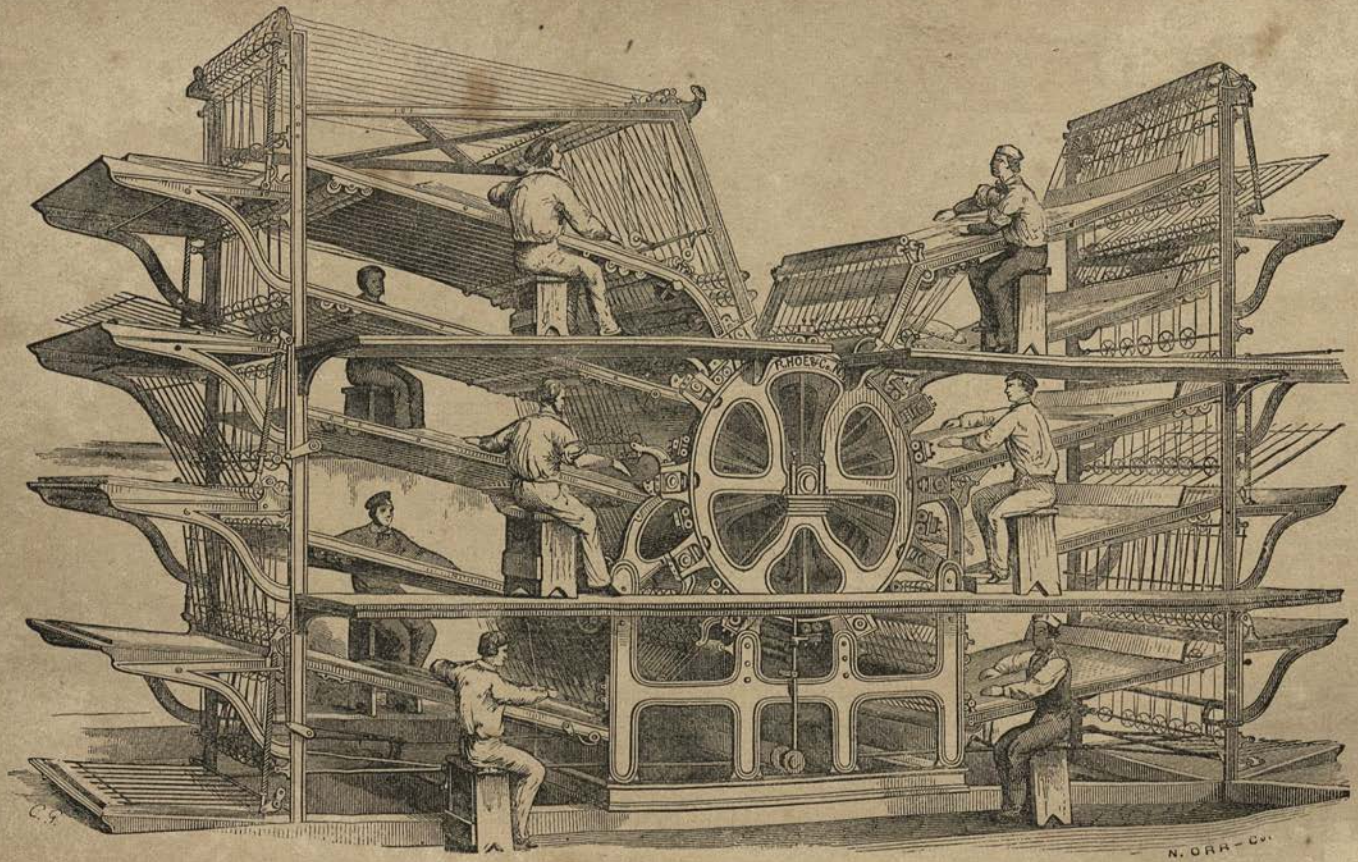
IMPROVED INKING APPARATUS FOR THE HAND-PRESS



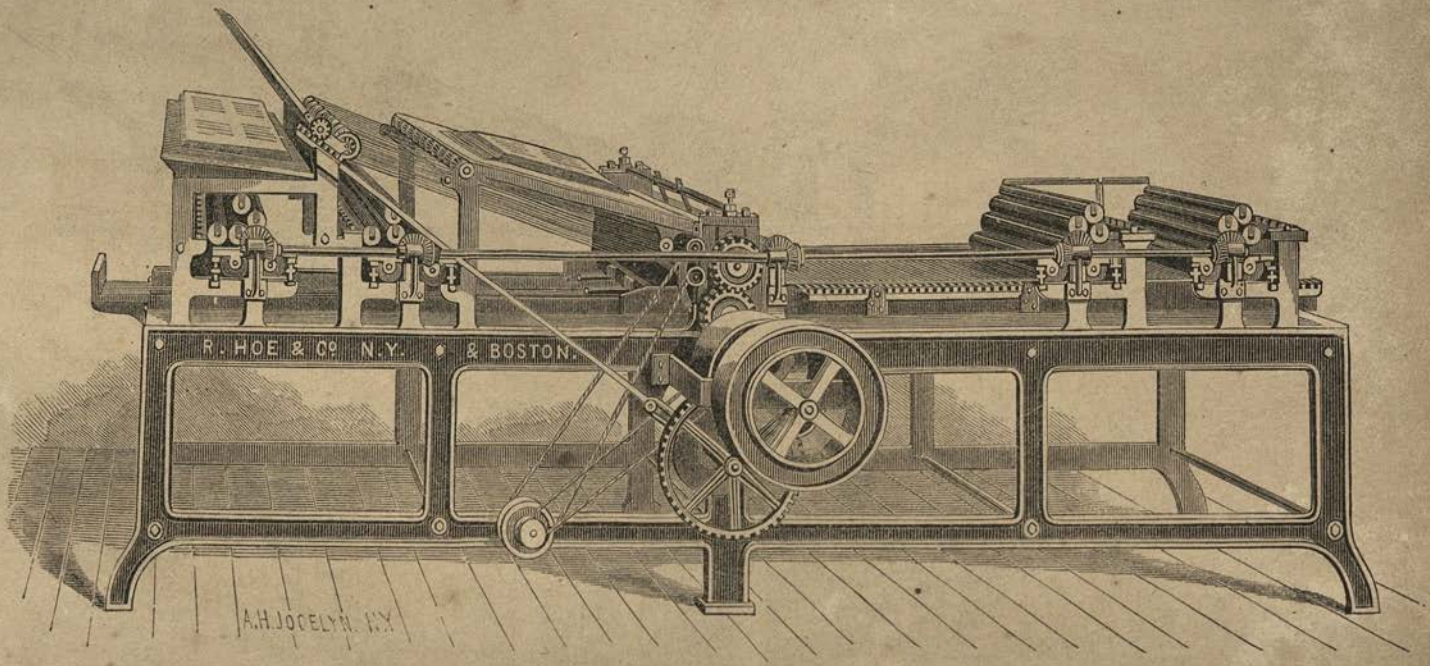
PATENT SINGLE SMALL CYLINDER PRINTING MACHINE.



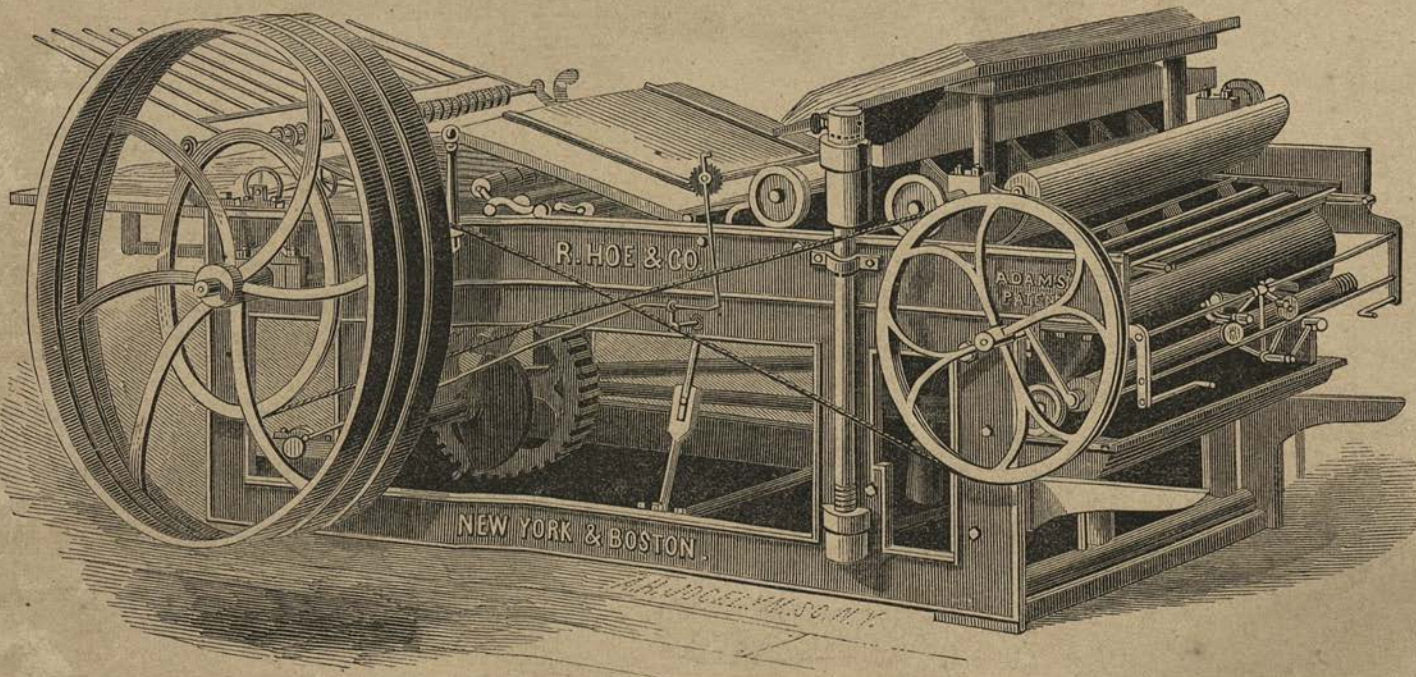
EIGHT CYLINDER TYPE-REVOLVING PRINTING MACHINE



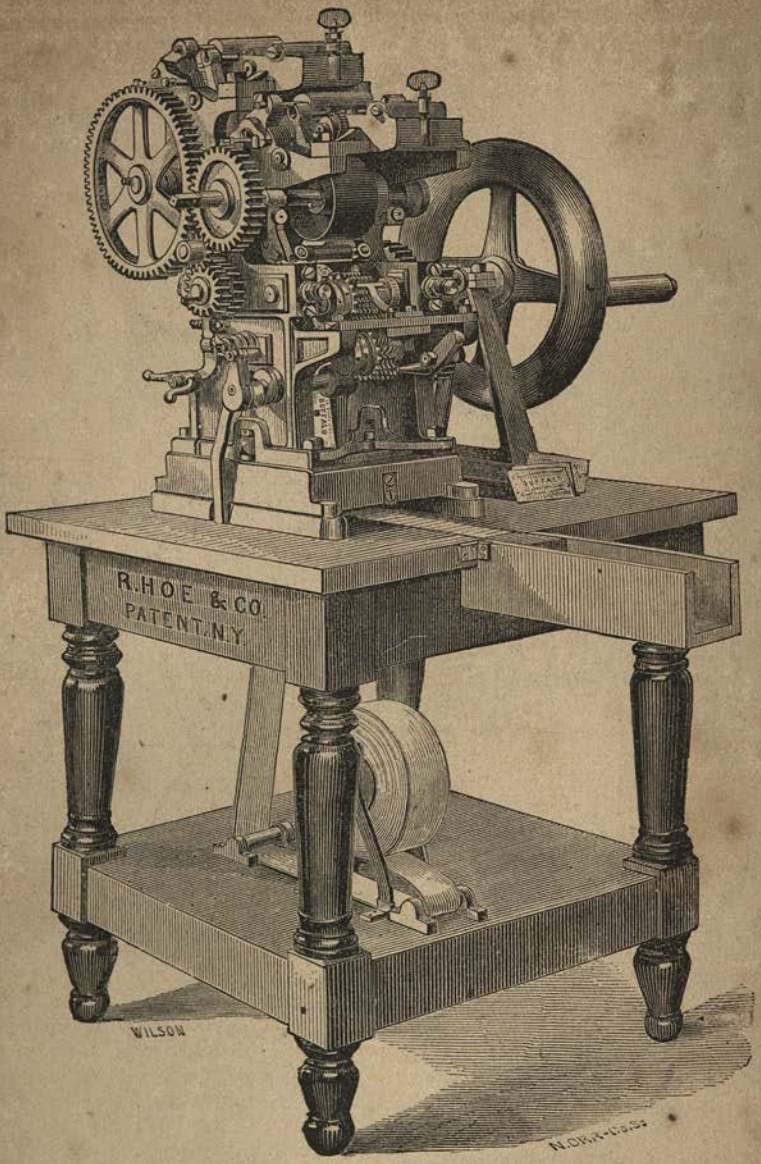
TEN CYLINDER TYPE-REVOLVING PRINTING MACHINE.



FOUR COLOR PRINTING MACHINE.



BED AND PLATEN POWER PRINTING MACHINE.



PATENT RAILROAD TICKET MACHINE.

In this machine the forms are placed on a cylinder which enables it to run with a continuous rotary movement. The tickets are worked from a roll of paper, and are printed, numbered, cut, and deposited in a receptacle in numerical order in a single operation. The numbering apparatus prints the number in a different color from the body of the ticket, and can be set at 0 or any required number with great facility. The machine will print from 10,000 to 12,000 tickets per hour, and occupies a space of about two feet square.

only by the ability of the feeders to supply the sheets. The four-cylinder machine is run at a speed of over 10,000 per hour; the six-cylinder machine, 15,000 an hour; the eight-cylinder machine, 20,000; and the ten-cylinder machine, 25,000. This system combines the greatest speed in printing, durability of the machinery, and economy of labor. As we have said, this great machine delivers seven sheets per second, or 420 per minute. It does in one minute what Franklin required ten hours to do, and the papers contain ten times as much matter, and are eight times as large. Thus, to print as much reading would have required 100 hours in the last century, against one minute now. In other words, 6,000 men with 6,000 presses, would have done very badly what this machine does very well.

The next attempted improvement in the speed of machines has been, to do for the revolving cylinder what was done before with the Napier press. In the case of the latter, another cylinder was introduced to take the type on its return vibration, thus getting two impressions from one movement. In the case of the revolving type, something similar has been attempted. It has been stated that the form of type occupies but a segment of the cylinder. It was conceived that by placing the other form on the vacant space of the cylinder, that both would be printed with one revolution, thus doubling the amount of work done by the same number of revolutions. The mechanical part the Messrs. Hoe succeeded in perfecting, but the difficulty encountered was in the paper. It will be conceived that when the paper is printed with such inconceivable rapidity, that the ink has no time to "set," and to impress it on the other side in almost the same instant of time is more than the nature of the operation will permit, and the type "takes off," so to speak, or will not produce a perfect impression. Some other persons made the same attempt, with similar results. Progress in that direction has, therefore, been given up, but the efforts of genius are being directed anew, and the experience of the past has warned us not to be surprised at what may yet be done. There have been attempts made to simplify the process by fitting stereotype plates to cylinders, and with some success; but the necessary delay in stereotyping defeats the object required, which is to save time. The adaptation of electrotype plates to cylinders in printing presses, has also been made with success, but these also require time in perfecting, and are, therefore, not adapted to the daily press.

The work of the weeklies of large circulation, is done on Hoe's large single-cylinder press. In these cases, where time is not so much an object, the forms are multiplied by the electrotypes and worked on a large number of presses. In some cases, the circulation running up to 400,000 weekly, a press running 1,500 per hour, or 20,000 in a day, will require 10 presses four days to perfect the edition on both sides, and for this purpose, ten separate forms will be required. These machines will take a form 19x23½ inches, and up to 40x57 inches. The cost of the former is $960, and of the latter size, $2,650.

The press most used for book work, differs in principle from either the Napier or the revolving type. It was the invention of Isaac Adams, of Massachusetts, and it bears his name. The type in the press has no movement except slightly up and down. It receives the ink from a self-acting machine, and the paper is fed to it from an inclined plane, when, the impression being made, it is lifted off by the fly and deposited in the rear. It is the most perfect of all presses. The prices of these vary from $600 to $2,980, according to size. The engraving on another page will give a good idea of this machine, of which the patent is secured by the Messrs. Hoe.

The printing on all the machines described admits of but one colored ink, but for fancy work of various kinds, more colors are at times desirable, and for this purpose, Hoe & Co. have devised a machine by which four colors can be printed. It is simply the ordinary single small cylinder press, having the bed sufficiently long to receive four forms (when four colors are to be printed), and provided with four ink fountains, each one of which inks its appropriate form. The sheet is fed from a feed board and taken by fingers in the usual manner, but after receiving an impression from the first form, instead of being thrown off, it is held by the fingers and continues to revolve with the cylinder, and thus receives an impression from the second, third, and fourth forms, as they successively pass under it. The fingers then open, and the sheet is thrown off and down by the sheet-flyer in the ordinary manner. It is thus seen that

the sheet is printed in four colors at one operation, and in perfect register, without any pointing being required. These machines are made to print two, three, or four colors, as ordered. An idea of its action may be gathered from the illustration.

TYPES.

CHAPTER I.

TYPE FOUNDING—STEREOTYPING—ELECTROTYPING.

THERE has been little change in the general form of metal types used in printing, but much improvement in the quality of the metal used, in the style of the letters, and in the process of casting. There are many sizes of type used, but the ten following are those most used in books and newspapers. They are mentioned in the order of the sizes, the smallest being first:—Diamond; Pearl; Agate; Nonpareil; Minion; Brevier; Bourgeois; Long Primer; Small Pica; Pica. The size of the type employed in this page is Long Primer.

There are some combinations of these sizes; but these are the leading ones most in use. These have not varied much for a long period of time, although the competition among the type founders has led to the introduction of many styles.

In 1812, on the publication of "The Columbiad," by Joel Barlow, a size of type, known as Columbian, was cut for the work, which was designed to be very perfect. It was embellished by Robert Fulton; and it was the first ever printed upon Clymer's newly invented press, which press took the name of the Columbian in consequence.

The casting of the type was, until within fifteen years, done by hand for each separate letter. The matrix of the type is of copper, 1¼ inches long, ⅛ of an inch deep, and of the breadth of the type to be cast. The form of the letter is made in the end of the copper matrix by a steel die. The copper matrix is then inclosed in a wooden box, which has a hopper to admit the melted metal. There is a spring attached, by which the matrix may be opened to release the letter when cast. The caster, holding this in his left hand, takes from the furnace, with a very small iron ladle or spoon, about as much of the metal as will form one letter. This he pours in, and at the same time gives the matrix a smart upward jerk, which settles the metal into the finest cuts of the letter. He then presses the spring, hooks out the letter, closes the matrix, and proceeds as before. A skilful man will in this way cast 500 types in an hour. In 1811, Mr. David Bruce received a patent for an improvement in the mould, by which 25 per cent. more work was done. This system has changed since the introduction of machinery.

About 15 years since, Mr. Geo. Bruce, Jr., of New York, invented a very beautiful machine for casting type, and it is the best in the world. The patent has been renewed at the last session of Congress for seven years, and the right, title, and interest, have been purchased by Messrs. J. Conner & Sons. By this machine a man can cast three times as much in a day as by the old plan. The wages are less than half, per thousand, what they were before, but the caster, nevertheless, earns more. In these machines the type metal—which is a mixture of lead, tin, and antimony—is contained in a state of fusion in a small iron reservoir, about 5 inches square, and into which it is forced with great power. This is tapped by a nipple, which holds as much melted metal as will cast a type. The mould is of steel, in a small machine which is worked by a crank. It is simply for the body of the type, and is so placed that the lower end, by a movement of the machine, will fit exactly over the orifice of the nipple. Against the other end is applied a copper matrix of the letter, and firmly held by a spring. The operator then causes the metal to jet into the mould. Then, as soon as it is "set," he releases it, opens the mould, and allows the type to drop into a box. In this process, the matrix of the letter is separated from the body of the type. It is formed on a steel die, and impressed into the copper previously prepared,

with great force. The adjustment of this matrix to the mould is a work of great care and nicety. After the type is cast, by whatever process—whether by machinery or the ancient spoon method—it has to undergo a smoothing operation. This is performed by young people, principally girls; three or four sitting around tables surmounted with properly prepared stone slabs, and by the fingers rubbing the roughness off each individual type. At this work they earn from $5 to $7 per week. The type goes then into the hands of the dresser. He cuts out what is called the jet end, by which process all the types are made of the exact height. On the nicety of this operation depends the ability to use the type. It may be here remarked that American type comes nearly always perfect into the hands of the dresser, while in England nearly one-fourth is rejected as imperfect.

The types have upon one side a "nick." As the types are perfected, a boy sets them on a "galley," with all the nicks out. They are then assorted into small "fonts," and are then ready for the printer. The proportions in which the different letters are cast to a font of type, and in which they occur in print, are as follows: Letter e, 1500; t, 900; a, 850; n, o, s, i, 800; h, 640; r, 620; d, 440; l, 400; u, 340; c, m, 300; f, 250; w, y, 200; g, p, 170; b, 160; v, 120; k, 80; q, 50; j, x, 40; z, 20. Besides these, are the combined letters: fi, 50; ff, 40; fl, 20; ffi, 15; ffl, 10; æ, 10; œ, 5. The proportion for capitals and small capitals differs from the small letters. In those, I takes the first place, then T, then A and E, etc. The "cases" in which the types are put for use, are arranged in the manner seen in the engraving on another page. The little square boxes in which the type is laid are not arranged in the regular order of the alphabet, but in the order which experience has shown is the most convenient for the compositor. Those letters which occur the oftenest—as e, for instance—occupy the largest squares nearest his hand, and the others in the order of their relative importance; the capitals, small capitals, and marks, each in its proper place, in the upper case. The workman does not look at the type. He reads his copy only, and that frequently tasks his ingenuity to make out. He knows the types from the boxes they occupy, and the "nick" enables him to place them right side up by sense of feeling only. He is paid by the thousand ems when working by the piece. An em is about the space of a letter M, and 2,200 ems go to one of the pages of this book. A good workman will set 5,000 to 6,000 ems in a day. Sometimes they are paid by the week, $12 per week, which is about the amount that an expert workman will earn by the thousand. The type he places in a small iron frame, held in his left hand, and called a "stick," which is adjusted to the breadth of the column or page. When this is full, it is deposited on a "galley," in a long column. From this galley a proof impression is taken to be read by the author and proof-reader. The inaccuracies are marked on this, and when corrected in the type, the foreman "makes up his form." If for a daily paper, this is done by screwing the columns into the "turtle," which is fastened upon the revolving cylinder of the press. When the type has been printed from or worked off, it is immediately washed in a strong alkali, to clear it from the ink. If this is not done thoroughly, it will not print clear. Formerly this washing was done with urine, but of late an alkali is substituted. The clean type has now to be "distributed," or put back into the cases. For this purpose the compositor takes the "matter" in his left hand, reads a line, and drops each letter into its appropriate place. This occupies a good deal of time.

All this type-setting and distributing is done, letter by letter, by hand up to the present time, although the greatest efforts have been made to introduce machinery. A number of type-setting machines have been invented, and many of them work well in the setting of the type—the operator working upon keys, like those of a piano, with the copy before him. The arrangement is such that, by touching the proper key, the appropriate letter falls into line, and the work goes on rapidly and well, even to the punctuation. The difficulty not yet overcome, and which is an obstacle to its usefulness, is that no means of "justifying" have been discovered—that is, of breaking the lines into the suitable length, and "spacing" them out so that each line shall have the exact length of all the rest. This is done by the hand compositor, with great nicety, in his iron stick, as his work progresses. As this must still be done by hand, after the machine has set up the type, no great advantage is derived from its action. In type distributing more success has been obtained. The ma-

chine is so constructed that it will distribute 12,000 ems per hour with unerring accuracy, and one man may tend three machines; hence he will distribute, by its aid, 36,000 ems per hour, while a good workman by hand will only distribute 3,000 ems. This seems very desirable, but a new difficulty presents itself. The machine cannot read, so as to distinguish one letter from another, and it is guided in its selection by the "nicks." It follows, that no two of the twenty-four letters of the alphabet should have the same "nicks;" consequently, a special kind of type must be cast for the machine. They are then put into it in a mass, and present themselves alternately until the proper "nick" goes through. The advantages of the machine do not overcome its disadvantages.

In book work the type is not hurried from the compositor to the pressman, as in the case of the daily papers. There is more time, and the type itself is, therefore, not usually printed from, but it is stereotyped. This was introduced in America about the year 1817, by Mr. G. Bruce, the father of the inventor of the type-casting machine.

In this process, the type being locked up in the form, which usually contains 2 to 6 pages, and carefully revised and corrected, is sent to the stereotyper.

Stereotyping is the mode of casting perfect fac-similes, in metal, of the face of movable types. The plan is simple. After arranging the type in pages, and getting it perfectly smooth and clean, it is placed in a frame, the surface being thoroughly oiled, to prevent the mould from adhering, when liquid gypsum, or plaster-of-Paris, is poured over the page. The mould, thus taken, if found perfect, is dressed with a sharp instrument, and is then ready to receive the metal. It is then put into an iron casting-box, and the whole immersed in liquid type metal. Twenty to thirty minutes usually suffice for casting. The box is then swung out of the molten mass into a cooling-trough, in which the under side is exposed to the water. When hard, the caster breaks off the superfluous metal, and separates the plaster mould from the plate. It is then picked, the edges trimmed, the back shaved to a proper thickness, and made ready for the press.

The process of electrotyping has, of late, become an important element, and is generally preferred to the old system of stereotyping. It results from the disposition of copper, held in solution, to deposit itself on a metal surface, when under the influence of magnetism.

This art has a very extended application, since a very small quantity of the metal held in solution will suffice to change the apparent character of that galvanized. A copper pencil, for instance, of elaborate ornamentation by pressure, will require 20 cents worth of gold galvanized upon it, to become solid "gold;" a thimble becomes "gold" for 5 cents worth of that metal; and the most astonishing jewelry can, for a few cents, be made gold. The art of the transmutation of the metals, so long sought after with such assiduity and perseverance by the alchemists of old, seems to have been discovered. It is not altogether a seeming, since the operators have, in many cases, realized fortunes at the expense of the credulous.

Stereotyping by the Electrotype process is conducted as follows: An impression is taken from the corrected forms or engraved block upon a plate of wax, and finely pulverized plumbago is then dusted thinly over the surface of the wax. The excess is blown away in a machine contrived for this purpose, and the fine dust remains uniformly in contact with the wax in every little depression and line, without filling these up. The object of the plumbago is to act as the conducting medium for the galvanic current, until a film of copper is deposited. But by a recent modification of the process, this film is also produced before the article is put into the trough, by the application of a wash of sulphate of copper, (solution of blue vitriol), and dusting over it fine iron filings. The solution is decomposed by the iron, and metallic copper is immediately precipitated, forming a delicate film which uniformly covers the whole surface. The wax plate retaining this film is well washed, and is then ready for the galvanic trough. In this it is left over night under the influence of the electric current, and in the morning when taken out the coating of copper is found to be sufficiently thick for handling. The wax is removed, and the copper sheet, first tinned on the back, is placed face down in an apparatus in which it is covered with melted type metal. Thus backed a plate is obtained, which, after being dressed by planing and squaring, is screwed down upon a mahogany block, the height of the whole being the same as that of type.

Plates for use upon the cylinders of printing machines are made with the curve of the cylinders, the forms themselves in which the type are paged having a convex surface, which gives them the name of "turtles."

In making copper-faced type, ordinary types are set in a frame so arranged as to let only the letter end in the copper solution of the battery. The deposit of copper adheres to this end, which it completely covers. Such type are now extensively used in large establishments, and are very durable.

NEWSPAPERS.

CHAPTER I.

NEWSPAPERS—DAILIES—WEEKLIES—PERIODICALS.

The power and circulation of the daily press are among the marvels of the present day, and they are features peculiarly American. No country presents such a number of news publications, and none such a universal popular demand for them. This result has been obtained mostly in the last twenty-five years, by a combination of causes. The two leading ones, are the introduction of the cheap press and the invention of the means of so multiplying numbers, that much interesting matter can be sold for a little money. Take a leading morning daily. This is equal to a book of more than 100 solid octavo pages, sold to the retailer for one and a half cents every morning, no profit being derived from the sale. This has become possible only through the ability to produce a vast number on one hand, and through the immense receipts for advertising on the other. By the introduction of a cheap press, is not to be understood the mere printing of a mass of matter for a small price, but the introduction of such matter as attracts the attention of persons not previously habitual readers, and exciting in them so strong an interest as to make papers for the future a necessity. It is this which has been done by the cheap press.

The first newspapers of the country were hardly worth the name. In the colonies there was little of interest to draw public attention, and such papers as the *Spectator* and *Tattler* came across the water to meet the literary taste of the more wealthy, while the jealous care of the mother country watched over the colonial papers, lest they should breed sedition. Dr. Franklin informs us that the first start he got in life was through the misfortune of his brother, who owned the paper on which he was an apprentice, in incurring the displeasure of the government for disrespectful remarks. The paper was suspended, as Paris papers are at the present day, and Benjamin's indentures were cancelled in order that he might become the nominal owner. The editor of the *Boston Courant*, in 1732, made his valedictory to the public, because he found it too vexatious to be running with his proof in his pocket to the government house, and the new editor promised to do the best he could under the circumstances. There were few subjects then to interest the general reader, and the restricted state of industry allowed but little range for advertising. The paper was poor, and mostly imported at a high price from England, while the laborious work of a man through the live-long night on the presses of the day, gave but a few hundred to circulate in the morning, and these few were to be sold at a rate that must cover all the expenses—that is to say, for more than they were worth.

The first daily paper published in the United States, was the *Pennsylvania Packet or General Advertiser*, started as a weekly, by John Dunlap, in 1771, and merged into a daily in 1784, at the peace. To one of the conductors of the paper, Washington gave the manuscript of his "Farewell Address, and which, at a recent sale of his executors, was purchased by Mr. Lennox, of New York, for $2,000. The first form in which printed news appeared in England was that of doggerel ballads, which were issued as early as the reign of Queen Mary. These were followed by occasional sheets, or pamphlets, of

news; but the first approach to a regular newspaper was the *Weekly Newes from Italy, Germanie, &c.*, May 23, 1622, which was continued, with some variations of title and occasional intermissions, until 1640. The earliest specimen of parliamentary reporting is entitled, *The Diurnal Occurrences or Daily Proceedings of Both Houses in this Great and Happy Parliament, from 3d November, 1640, to 3d November, 1641.* More than one hundred newspapers, with different titles, appear to have been published between this date and the death of Charles I., and upward of eighty others between that event and the Restoration. Occasional papers were issued after the civil war began, limited to local or special occurrences, as *News from Hull, Truths from York; Tidings from Ireland.* The more regular newspapers were published weekly at first, then twice or thrice in a week. The impatience of the people soon led to the publication of daily papers; and Spalding, the Aberdeen annalist, mentions that in December, 1642, daily papers came from London, called *Diurnal Occurrences*, declaring what was done in Parliament. In the Scottish campaign of 1650, the army of Charles and that of Oliver Cromwell each carried its printer along with it to report progress, and, of course, to exaggerate successes. It is from this circumstance that the first introduction of newspapers into Scotland has been attributed to Oliver Cromwell.

The stirring events of the American Revolution in like manner gave a great impulse to printing; but that took the form of pamphlets and circulars more than that of the periodical press. The event made the press free, and it began a new career; but the habits of the people had not been overcome, nor were the means of popularizing the press yet in existence. Nevertheless, polities became the staple of newspapers, which were started in most sections as the organs of parties and to support candidates for office; as a matter of course these were read mostly by those who were of the same way of thinking. The circulation could never reach a point that would make it profitable of itself, because the limit was the power of the press to work the papers. In the great cities the chief support of the press was the advertising patronage, bestowed in some degree in the light of political support. The foreign news and domestic items of intelligence made up the general interests, with ship news, that began after the war of 1812 to have a more extended character. These papers, published at $10 per annum, did not much interest the mass of people, beyond whose reach the price for the most part placed them; advertising patronage and government "pap" were therefore the sources looked to for profit. These papers were seldom left in families, but were carried home by those who took them at their places of business. The papers of the early part of the century were very meagre. The oldest existing papers of New York are the *Commercial Advertiser*, founded in 1797, and the *Evening Post*, in 1801. The rivalry among the papers of the day was not so much to interest the general reading public, as to conciliate those commercial interests on the patronage of which the means of the paper mostly depended. The *Commercial Gazette*, of New York, became a leading journal through the enterprise of its editor in collecting ship news. He himself rowed a boat, boarding vessels coming up the bay, to collect reports with which he enriched his columns. The other papers of New York and neighboring cities followed the example, and competition was mostly in that direction. In 1827, the *New York Journal of Commerce* was started, chiefly by Arthur Tappan, Esq., of Boston, and David Hale, then an auctioneer in Boston, was made joint editor with Mr. Hallock, of New Haven. About the same time, two papers were united in the *New York Courier and Enquirer*, under James Watson Webb. These two papers employed news schooners to furnish ship news at great expense. This enterprise was promoted by the introduction of a Napier press, which allowed of an increased circulation of larger sized papers; and these became filled with advertising as the speculative years that exploded with 1837 came on. The success of these two rival papers, however, so absorbed the newspaper business, that it was fatal to the other old papers. The *Mercantile Advertiser*, by Butler; the *Daily Advertiser*, by Dwight and Townsend, and the *Commercial Gazette*, by Lang, which had long flourished, died out. There are many who still remember the old gilt head of Franklin, which for so many years surmounted the door of the *Gazette* publication office, and which still looks out upon Wall street from another office, with the inscription, "Old Lang's Sign." Several other papers followed, among which was the *New York American*, evening paper, edited by Charles King, Esq. At that period cheap

newspapers; fast presses, telegraph and express companies made their appearance all together, to work out by mutual aid the marvels that we have since witnessed. The first penny paper was published by Benjamin H. Day, in 1833. It was about ten inches square, and sold for one cent, or to the newsboys for sixty-two and a half cents per hundred. It was without editorials, but was filled with news items. It grew rapidly to a large circulation, and acquiring advertisements, swelled into a larger sheet, which got into the hands of Mr. Beach. This was hardly known out of New York, and being confined mostly to local news and without marked character, never became an influential paper, although its circulation ran up to 60,000, and it was one of the first to use Hoe's fast press. This large circulation was obtained at first through the notoriety that the publication of the celebrated Moon Hoax imparted to it. A great number of other penny papers were started as the result of the success of the *Sun*. That paper, however, occupied the ground, and none succeeded, until in 1835 the *New York Herald* was started by James Gordon Bennett, a veteran editor.

From that time really dates the new era of newspapers. The *Herald* was sold at one cent, and Mr. Bennett, with great industry and genius, wrote the whole of it himself. The first week's expenses were $56, and from that time they have not ceased to increase up to the present time, when they are several thousand dollars per week, and the profits probably $150,000 per annum. The principle of the cash press was radically different from that of the old papers. Of the latter, politics had been the staple; every paper was the organ of some clique, and the commercial community the patrons. The new press explored every possible topic of interest, making politics secondary. It excited in the public mind an interest in topics that had been before dormant, and satisfied that interest by selling a very cheap paper. The *Herald* began systematic reports of the money and commercial markets, maintaining them with a vigor that gave it a world-wide reputation, and soon made such reports a necessity for all papers. It sent efficient reporters to the courts, to public meetings, to give graphic descriptions of what actually occurred, instead of (as in the old style) printing the proceedings from manuscript prepared before they took place. It reported religious anniversaries, and opened every avenue of interest with the most persevering industry and in a style that attracted readers. The proprietor was ever on the alert for more efficient means of obtaining news, and spared no expense to be the first in the field. Expresses by railroad were frequently run at great cost, and reporters were sent to any part of the country where events were of an interest to justify it. The appearance of the telegraph was the signal for new enterprises. These, on the part of the *Herald*, have done more to extend the telegraph than all other means together. Its enterprise did for the telegraph what before it had done for the press. In 1847, Mr. Clay spoke in Lexington, eighty miles from Cincinnati, on the Mexican war. There was no telegraph nearer than Cincinnati. The *Herald* reporters took down the speech, and by horses relayed every ten miles, carried it to Cincinnati in eight hours, whence it was sent by telegraph and issued in the *Herald* next morning, at an expense of $500. This is one instance of many by which the *Herald* has impelled enterprise.

The Associated Press, which embraces the New York papers and those of the neighboring cities, together with many of those of the interior cities, pays $200,000 per annum for the daily reports. The *Herald's* proportion of this forms, however, but a small portion of its outlay for telegraph. In two weeks in September, 1860, when the Prince of Wales was in Canada, and the political events of the presidential campaign to be gathered, it expended $2,301 for extra telegraphic reports, and its whole expense for that item will average $1,000 per week during the year. It is such enterprise as this that makes telegraphs possible and the paper indispensable. That the circulation swelled beyond the capacity of the press is, under such circumstances, no matter of surprise. The result was an affluence of circulation that could have been met only by the opportune appearance of the fast presses of Hoe & Co. The first *Heralds* were printed by hand; a single-cylinder turned by hand followed, and was succeeded by the double-cylinder, turned at first by hand and then by steam. In 1848 the four-cylinder press came hardly in time to meet the *Herald's* wants. The six-cylinder, the eight-cylinder, and the ten-cylinder succeeded each other, carrying the printing per hour from 250 to 2,000, to 3,500, to 10,000, to 15,000, to 18,000, and to 25,000, even at which last

figure the tardy press still lingers behind the public demand for *Heralds*.

In all this time other papers have followed on the same general plan. The *Ledger* of Philadelphia has as large a circulation as any in the world. It employs two eight-cylinder presses. Baltimore, Boston, and other and distant cities, have seen the growth of flourishing papers. In 1841 the *New York Tribune* was started by Horace Greeley. Mr. McElrath subsequently joined it, and the paper soon reached a paying stage, since when it has become highly successful. The circulation of all its editions reaches nearly 500,000 copies per week.

The *New York Times* was started in 1850, H. J. Raymond, Esq., editor. He had been connected with the *Tribune* and the *New York Courier*. The paper has attained a great success, after struggling a long time to win a paying position. In the present year the *World* has been started on the same principle, with a large capital, subscribed by a company of gentlemen. These three papers are joint stock concerns. The *Tribune* was divided into shares, which are held by those who are connected with the editorial and publishing departments. The *Times* is owned in a similar manner, and the shares of both are at a high premium. The *World* is owned by persons not connected with the work of the office. The *Herald* is the only one owned by an individual, the only one entirely independent, and the only one in which the management and publication of the paper is the sole business of the proprietor.

The circulation of the New York dailies is now over 300,000 daily, against, probably, 10,000 of all at the time the *Herald* commenced. The largest proportion of this is the cheap paper, so called, and is among the whole people. Every family, and almost every individual has his paper, and is interested in it as a consequence. The desire to advertise, instead of being confined to the wholesale patrons of the large dailies, is shared by every class of the community, and the paper becomes the means of interchange of thought to an incredible extent. The advertising columns of a morning paper contain, perhaps, as much information of the doings of the community in which we live, as any other part of the paper—the wants, desires, occupations of our people—a photograph, as it were, of daily life. The *Herald*, as a matter of course, leads in this respect. The following, for example, is the list of the advertisements which appeared in the editions of one day:—

LIST AND NUMBER OF ADVERTISEMENTS PUBLISHED IN "THE HERALD" OF SEPTEMBER 12, 1860.

Shipping	30
Financial	12
Tobacco and segars	2
Theatrical and other amusements	27
Musical	20
Hotels	4
Sporting	3
Steamboats	5
Married	4
Died	31
Situations wanted, females	168
Help wanted, females	90
Situations wanted, males	31
Help wanted, males	42
Special notices	7
Too late for classification	17
Military	1
Copartnership notices	14
Newspapers	1
Personal	14
Lost and found	14
Rewards	2
Medical	15
Instruction	22
The trades	15
Loan offices	11
Houses and rooms wanted	34
Political	15
The ball season	1
Furniture	9
Houses and rooms to let	51
For sale	48
Boarding and lodging	172
Country board	3
Millinery	9
Matrimonial	1
Dentistry	4
Astrology	8
Sales of real estate	42
The turf	3
Horses, carriages, &c	25
Railroads	5
Sales at auction	32
Excursions	4
New publications	1
Miscellaneous	19
Clothing	11
Billiards	2
Dancing	2
Dry goods, &c	19
Wines and liquors	1
Business notices	67
	1,191

Here are nearly twelve hundred people speaking their wants and announcing their business in one day; for be it remembered that these are nearly all fresh advertisements, handed in and paid for over the counter the day before insertion, which are all read with avidity by some one. These advertisements belong to the day on which they

appear, and compose a part of the life and the news thereof, like any other matter in the paper—to many people more interesting and more important. No portion of a great metropolitan journal, then, is dead matter; even the advertising columns, which many suppose to be dull and tedious, are full of life and interest, and fresh every day. It is amusing to contrast such a paper with the *Philadelphia Gazette* of 1750, then conducted by Benjamin Franklin. Its dimensions are about eight by ten. The news and reading matter which it contains, could all be put into one of the pages of this book. *It has not a single line of editorial.* Its latest foreign news was about three or four months old. Its domestic news principally related to the Indians. Among its advertisements were several notices of the sale of negroes in Pennsylvania. The progress of the newspaper art is well illustrated by comparing this sheet with those issued in our large cities at the present day.

It is to be remarked that, since the era of the cheap cash press, there have been no papers started on the old or credit system. The *New York Express* was started in 1837, and it has maintained its position only by adopting the cash plan for its evening edition. By the old system of publication, the subscription was taken for the year at generally $10, which was collected at the end of six months by the collector employed. These were served at the houses or offices by carriers, employed by the paper at a weekly salary. The subscriptions from the country were paid the first year in advance, but when the papers are continued on trust, enormous sums accrue in arrear subscriptions—from $10,000 to $50,000 bad debts sometimes accumulating. These being scattered in small sums all over the country, and that at a time when communication was not so prompt as now, did not pay to collect. The advertising was generally $40 per square per annum. A square was twenty lines. This was mostly commercial advertising; the public and retail trade did not advertise much. The system involved much expense in collecting, and inevitable losses in bad debts.

The system with the cheap press is entirely different. The papers were started only by sales to the newsboys, who paid the money when they took the papers. There are no subscriptions taken at the office, and, consequently, no carriers employed. The penny papers sell to the boys at 62½ cents per hundred, and the two cent papers at $1.50 per hundred.

When the city circulation of the papers extended itself, many persons wished to get them regularly at their houses every morning. Thus some of the newsboys got regular subscribers, and became carriers on their own account. Although they were obliged to pay cash every morning for the papers when they took them, they soon acquired as much means as enabled them to leave the papers with their patrons, and collect the twelve cents at the end of the week. This promoted circulation, because the customers could not always have the two cents early in the morning to pay with. The carriers then extended their routes, and became proprietors of them, independent of the newspapers. A carrier who succeeded in getting 1,000 subscribers to serve every morning, paid out to the office every morning $15 for the papers. At the end of the week he collected $120 from the subscribers, which gave him $30 a week profit. This was a good business, and many came to employ boys to serve under them, and serve several different papers on their routes. These routes have been sold by the carriers, according to value, from $200 to $2,000 each. There also arose the publishing agencies, which took large numbers to sell at stations and small shops in the city, and to send to other cities by express, in bundles to be served there.

The country subscriptions are taken for a year in advance. Their subscriptions are all written in "mail books," which are classified North, East, South, West, according to the direction in which they are to be sent. The books are laid off into states, counties, and towns, and the name of the subscriber is written under the appropriate town, with the date up to which he has paid. The wrapping paper being prepared, a number of boys are employed copying the names upon the wrappers, which are then laid in order ready to receive the papers when printed and folded. When the date to which a subscriber has paid is expired, the mail boy crosses it off, unless it has been renewed by a new date. This simplifies the accounts very much, any number of subscribers requiring no other account than these simple mail books, and no one gets a paper that is not paid for. Thus there were grown up four chief avenues for the sale of papers—the mail, the carriers, the newsboys, and the

agencies. Each of these wanted their papers *first* in the morning, and the rush of all at once made so great a pressure that it was difficult to count the small sums of money that each offered, and count the papers also. Hence it became the rule for all to go the evening before to the office, pay in their money, and take a ticket for the number wanted. The matter of precedence was settled by the necessities of the case, and the decision of the "cutter," like those of a chief justice, are open to "influences." It is now to be borne in mind that 50,000 daily papers, and in some cases, on the day of publication, 200,000 weekly papers are to be distributed to all these persons at once. There must be no delay. The mail is to swallow its share; the express have its allowance; and the community must not be disappointed at breakfast by either newsboys or carriers. Thirteen tons weight of paper is to be divided up into quantities of from five ounces to thousands of pounds without mistake or delay. Let any one undertake to fold up a wet paper that has never been folded, and he will estimate the difficulty of getting 200,000 folded, wrapped up, and mailed in an hour's time. To facilitate the folding, a machine has been invented, which does the work rapidly and well. A machine has also been invented to direct papers; this does not do so well. The cylinder machine is flinging off the copies seven per second, and newsboys, mail boys, carriers, and agents, are vieing with each other in the rapidity and skill of the operation. Within a short time after the huge machine begins to relax its speed, the whole mass is gone, in bags and bundles, in carts and wagons, while fifty carriers, with lots under their arms, are on their routes, and the newsboys are seeking the ferries and landings, with their shrill cries. Contrast this with the solemn grunting of a hand press thirty years ago, through the live-long night, to work off its seven reams of paper that were to furnish 3,500 copies, as the immense edition of a "crack" daily, to sleepy carriers and a mail clerk!

The operation of the express companies greatly facilitated the sending of the papers to the publication agencies in other cities. These are sent in bundles as they come from the press, and are opened, folded, and served after their arrival. There has been a growing demand in this way for city papers, and an individual recently conceived the magnificent idea of extending, as it were, a carrier's route 300 miles, and ensuring those distant readers their paper at the breakfast-table. He ascertained by calculating time, that if he could procure all the daily papers at a certain time in the morning of each day, he could run a special express up the North River in time to catch the early train going west, and by so doing deliver the papers in all the cities of the North River and on the line of the Central road, to the readers at the same time the readers in New York city get them. To do this, it was necessary for the daily papers to get to press at a certain hour, and deliver to this express the first numbers worked. This they agreed to; at the stated hour the wagon receives the papers in sheets, drives rapidly to the car waiting with steam up at the Hudson River railroad, tosses in the papers, when they are immediately seized by folders and wrappers, and made up into bundles, in the order of the nearest towns first. The locomotive starting the moment the papers reach it, whirls on like a thunderbolt, and as it passes each town and village, the package that belongs there is thrown out to be picked up by expectant hands for distribution. The first towns reached get these before they are wanted, but even with the terrific pace of the iron horse, daylight gradually breaks upon the rapid folding, wrapping, and tossing, as each successive town comes as it were out of the gloom of night, to brighten into gray and catch the gilding of the rising sun as well as the intellectual light emitted from the passing meteor. The race is sustained until the papers are all delivered and the early morning spent. The limit to this enterprise is the rate of speed only, since if that could be doubled, a radius of 600 miles around New York might feel the morning's rays of the press as well as one of 300 miles. The tendency of this is to centralize the power of the press, since, if all the readers of papers within a circle of 300 miles can get the New York papers as early and as cheap as in the city itself, and these papers contain the news of all those cities conveyed by telegraph to be printed and returned, why the carriers' routes of the city press are only extended, and the papers so conveyed will look down, or read down all competition. This enterprise was suspended after a few weeks' operation, as not yet paying sufficiently.

The sale of papers at the steamboats and in the cars has become a large business,

and the privilege of doing so is now farmed out by the companies. The privilege is paid for at rates sometimes as high as $5,000 per annum on good routes, say some of the best travelled into New York. The conductor employs boys who start with the out trains in the morning, supplying all who go. These trains meet others in an hour's ride coming in, filled not only with passengers from a distance, but with persons who, doing business in the city, commute on the road and come in every day; all of them are anxious for the papers, and they are sold at 50 per cent advance, say 3 cents for the 2 cent papers; a sale of 2,000 papers at this rate gives a profit of $30 per day, or $8,000 per annum.

The Sunday Press has become a feature in New York within twenty years. The first Sunday paper was the *Sunday Morning News*, published in 1835, by Samuel Jenks Smith. It had a considerable success, but stopped on the death of Mr. Smith. In 1840, the *Atlas* was started by Herrick, Ropes & West. The last-named had been a reporter on the *Herald*. The paper had a great success, and is still flourishing. The *Sunday Mercury* was next started, and received a great impulse from the "Patent Sermons" of Dow, jr. Then followed the *Sunday Times*, the *Dispatch*, and others, which have attained much success.

The illustrated weekly papers have also become successful in the last ten years. The first was started with a good deal of capital and spirit in 1845, but lived only a short time. Then followed many which did not succeed, until Mr. Barnum and others started the *Illustrated News* in 1853, which failed in a year, although Mr. Barnum had declared that he would carry it on if he had "but one subscription, and paid that himself." A number of papers were started in imitation of the London *Punch*, but without success. The vein of American humor could not be reached until the *Yankee Notions*, a collection of grotesque wood-engravings, cheaply got up, had a success that has earned a fortune for the proprietor. The *New York Journal*, a literary paper without much circulation, introduced a few pictures. It was purchased by Frank Leslie, who, after Barnum's failure, started his successful *Illustrated Newspaper*, having of late a rival in the *New York Illustrated News*. The Messrs. Harper started, in January, 1857, *Harper's Weekly*, which was at first partially illustrated. It gradually, however, acquired the pictorial character, and attained an immense circulation, supported as it is by the highest talent at home and abroad. Stories by Dickens, Bulwer, Wilkie Collins, and original tales by American authors, appear in it. Hence it is a work of a high character, of which the illustrations are a feature, and not the sole dependence. There were issued last year 4,500,000 copies of the *Weekly*. The largest circulation of the secular weeklies is perhaps the *Ledger*, which is partly illustrated, and is an instance of singular success. It was, at first, as its name indicates, a commercial paper, struggling to live. During the popularity of Fanny Fern as a writer, it suddenly changed character, gave that lady $100 per week to write for it exclusively, advertised freely, and obtained a large sensation circulation, which is not enduring.

We have spoken mostly of the city press, the general features of which apply to the press of most cities, and some great examples are apparent in the papers of western and southern cities. The press which has the most enduring influence upon the public mind is, probably, the country weeklies. These are, from the circumstances of the case, not endowed with the flash and energy of city papers, but their enterprise being confined to their localities, their teachings are concentrated in a manner that is read and which sinks deep into the understanding of the readers. The number of these precludes any attempt at particular description, and some idea of their extent may be formed from the aggregate number as reported by the census of 1850:—

NEWSPAPERS OF THE UNITED STATES.

	No.	Annual circulation.
Daily	254	235,119,966
Tri-weekly	115	11,811,140
Semi-weekly	31	5,565,176
Weekly	1,902	153,120,708
Semi-monthly	95	11,703,480
Monthly	100	8,887,808
Quarterly	19	103,500
Total	2,526	426,409,978

TELEGRAPHS—THEIR ORIGIN AND PROGRESS.

CHAPTER I.

TELEGRAPHS—THEIR ORIGIN AND PROGRESS.

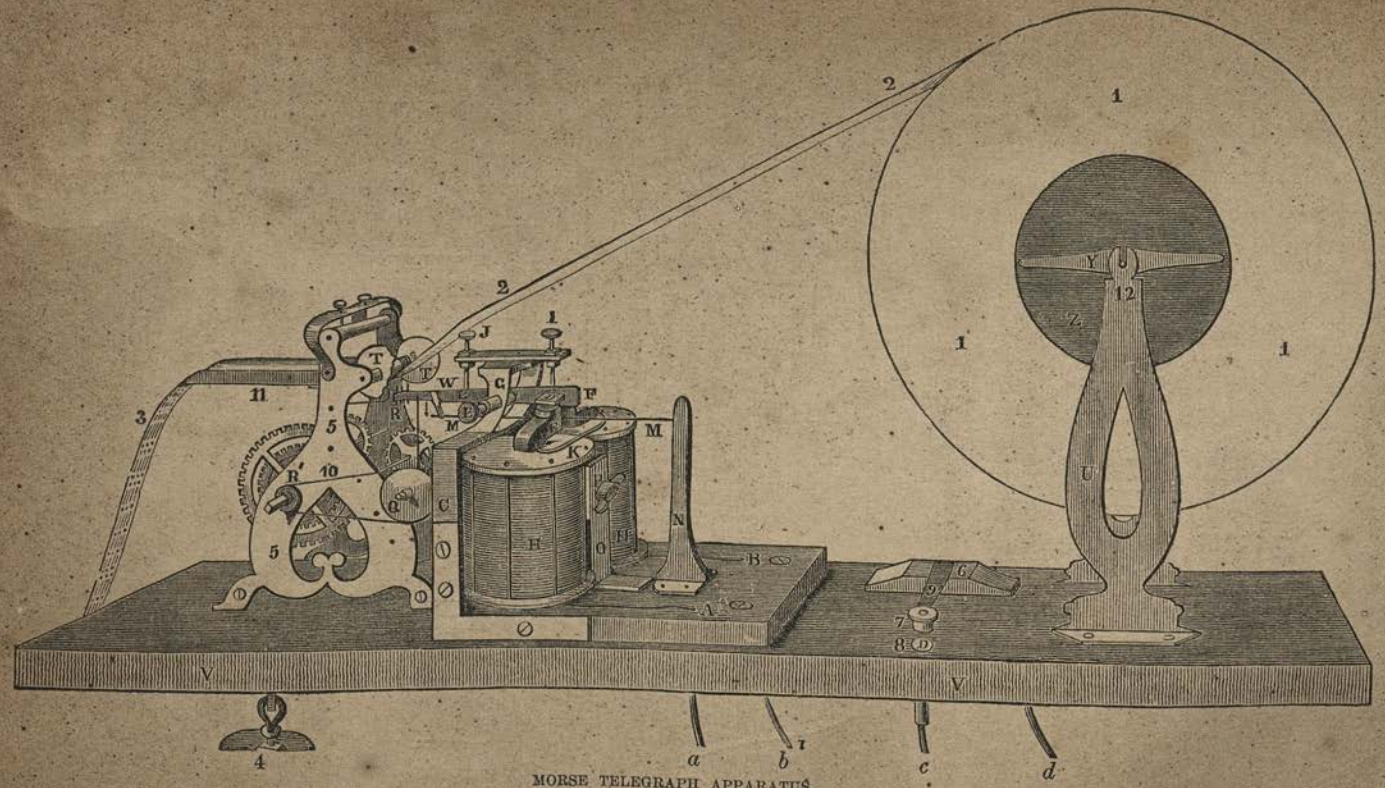
"Canst thou send lightnings, that they may go, and say unto thee, 'Here we are'?"—Job.

The invention and use of electric telegraphs are among the most important of modern improvements; and it is somewhat remarkable that the invention justifies the trite observation, that great inventions are made always at the moment they are wanted. Telegraphs have been used from the remotest antiquity, by signals of various kinds; and one by flags, to signal the arrival of vessels below, has been used during the present century in Boston; and, in New York, one operating by arms has been used for the same purpose from the Narrows to the roof of the Merchants' Exchange in New York. The electric telegraph applied lightning to intelligence as steam was applied to motion, and came into being to exceed, by its rapidity of intelligence, the means just invented to convey more rapidly by rail. Indeed, its action is necessary to the latter, since it would be very difficult to operate long lines of railroad, like the New York Erie and Central, without the aid of the electric telegraph. The patent of Morse, who was the originator of the modern telegraph, was taken out in the year 1840; since then, numerous modes of recording have been invented, and improvements adopted, and there are now three instruments in use—House, Hughes, and Morse—with a fourth, which is a combination of the two former.

It is curious, that just ninety years after Dr. Franklin identified lightning with electricity, by means of his kite, Morse should have schooled electricity to do messages instantaneously, over wire, at limitless distances. We say instantaneously, because the ascertained speed is 288,000 miles per second, which is scarcely perceptible, although, at that rate, it would take six minutes to send a despatch to the sun.

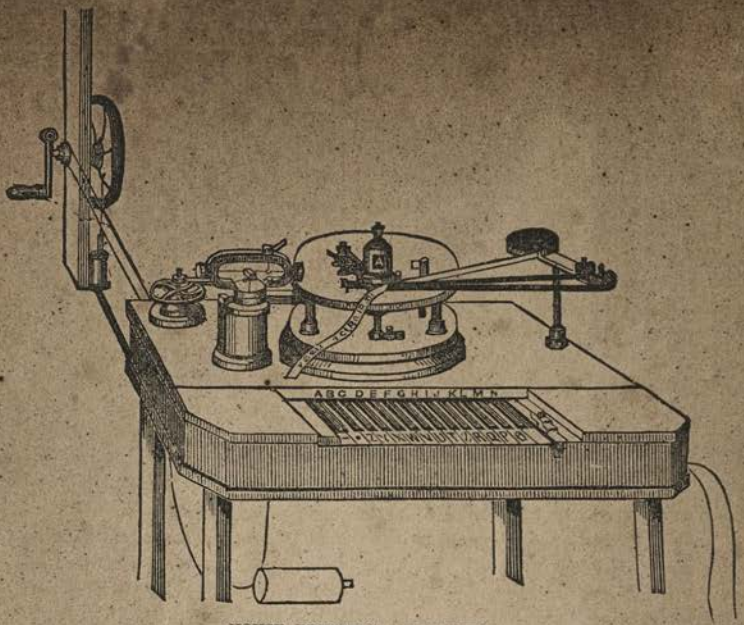
This all-pervading element manifests itself in countless ways—in the sparkling of animal hair; in the rustling of silk, which "betrays your poor heart to woman;" in the aurora that illumines the north; in the meteor that startles the astonished observer; it flashes in the lightning-bolt that rives the oak, without, while it gently penetrates into the lady's parlor and fills her form, as she glides over her warm, thick carpet, until the metal tube of the gas burner will attract enough from her finger to ignite the gas, or from her lips to startle a newly-entered friend. It will also convey to her the thoughts of distant minds with more than the assiduity of Puck, by means of the invention of Morse.

Morse was by no means the discoverer of the analogy between magnetism and electricity, but he was the first who made practicable all former discoveries and improvements. The three leading properties of electricity that make telegraphs possible, are, first, its constant desire to seek an equilibrium, always going where there is less; second, that the production of electricity is always in two currents, one *positive* and the other *negative*, having different tendencies; third, that different substances have very different conducting powers—over some it passes with the utmost freedom, while over others it will not pass at all. On this depends the possibility of telegraphing, since by it the current of electricity may be arrested or conveyed at the will of the operator. It was known that a current of electricity would render steel magnetic, and that to wind wire, in a certain way, round the steel, would greatly increase the effect. This magnet would then attract soft iron, and would remain magnetic as long as the current of electricity ran on it. The telegraph, then, consisted in connecting two of these magnets by a wire of any number of miles in length, and directing through it a current from an electric battery. By cutting off



MORSE TELEGRAPH APPARATUS.

H H represents the electro-magnet, L the pen-lever, and F the armature. Numerals 1, 1, 1, represent the reel of paper, with its axle at Y, fitted into the brass standard U at 12; 2, 2, is the paper coming from the reel; 11 is a metallic trough; and 3 is the paper after it has been marked by the pen points R; 4 is the weight that puts in motion the clockwork revolving wheel, to which is fastened the pulley R', with an endless band 10, which puts in motion the wheel Q. The letters *a*, *b*, are the line wires, one running to the battery, and the other to the telegraph poles. When the current passes through the coils H H, the armature F is attracted, and the lever W attached is elevated in the direction of the arrow, causing the small steel points, R, to puncture the paper passing between them and the roller T T. 6, 7, 8, and 9 represent the key. V V is the platform; 8 is a metallic anvil, with its smaller end appearing below, to which is fastened the wire *c*; 7 is the metallic hammer attached to the brass spring 9, which is secured to the block 6, and the whole to the platform. The copper wire *d* is fastened to the brass spring 9, and the other end to the line wire; *c* to *b*, and *a* runs to the voltaic battery.



HOUSE PRINTING APPARATUS.

BAIN'S ELECTRO-CHEMICAL TELEGRAPH.

the current, the steel becomes alternately charged and at rest with great rapidity. To form the current, it is necessary that each end of the wire should communicate with the ground. The interruption is caused by stopping this communication. The first invention of Morse was to place a small, soft iron bar across the end of a rod supported on pivots, in such a manner that the iron bar should be near the magnet. The moment the electricity excites the latter it attracts the iron, and, by bringing it down, causes the other end of the rod on which it rests to rise. That end is armed with a pen, which, as it rises, is pressed against a slip of paper, making a dot upon it. The distant operator, by making his connections longer or shorter, causes the pen to make marks more or less long, and these marks convey words or ideas. This instrument is called the register. This was improved by a clock-work accompaniment, by which the slip of paper is moved from a spool steadily under the pen in operation, thus receiving the impression conveyed.

The transmitting apparatus is very simple, being designed only for the opening and closing of the circuit in a manner more easy than by holding the ends of the wire in the hands, as is done where there is no apparatus. The two ends of wire are separated by two pieces of metal, on one of which is an ivory button, and on the other piece a steel knob, or "anvil." The operator, by depressing the button, brings the two together, completing the circuit, which is instantly broken by releasing the button; this may be done with great rapidity. To this system, at a later period, was added the "sounder," a simple contrivance, by which signals are conveyed by sound at the will of the operator, when the electric current is weak. Up to 1842 the operator read the despatch from slips of paper to the copyist, who wrote it down. It was soon found, however, that the despatch could be read by the "click" of the instruments, and the operator now copies, himself, from the sound. If a line is well insulated, a despatch may be sent 1,000 miles with as much ease as a shorter one; but variable weather, and other causes, prevent proper insulation, and "repeaters" are used. By this, the breaks and connections of one circuit are transmitted to another for the purpose of renewing the power. These are the chief features of Morse's system.

In 1846, a patent for a printing telegraph was applied for by Mr. House. By this, seventy strokes, or breaks, may be made in a second. A key-board, similar to that of the piano, has the twenty-six letters of the alphabet, and a dot or a dash painted over them. Under the key-board there is a wheel with fourteen cogs and as many spaces. Over all is a spring, which, when it presses against a cog, closes the circuit, and when over a space, opens it; a man turning a crank causes this to revolve, and at each revolution the circuit is opened and closed twenty-eight times. The paper receives its impression from the steel type cut in the surface of the type-wheel, by a press, which forces, by an ingenious contrivance, a blackened silk ribbon upon the type-wheel with sufficient force to make an impression. The type-wheel can make just as many revolutions as the circuit-wheel, and no more, and it has equally as many cogs. The press can only work when the type-wheel is at rest, and that is controlled by the keys. These are leading features of the House system. The first line that used this was the New York and Philadelphia, in 1849, and in the same year it was adopted on the New York and Boston, and others have since adopted it.

The system of Hughes was the most extraordinary of all in point of mechanism, and, in fact, was proved to be too perfect for the state of the other apparatus used. The instrument is not worked by a crank, like that of House, but by clock-work, with weights. Inasmuch, however, as the ordinary pendulum would be far too slow in its movements, he invented a vibrating spring called the "governor." This depends upon a law of acoustics, by which a certain number of vibrations per second produces a certain musical tone, and, per contra, two springs at the same tone will give the same number of vibrations. These springs control the speed of the instrument; hence, if all the instruments on a line of telegraphs are set to the same tone, they will run with the utmost accuracy. So great is this, that Mr. Hughes has run his instruments 140 revolutions per minute, through an entire day, without a perceptible variation—a result of the most surprising character, enabling the type-wheel to present the same letter in the same place all along the line at the same moment. The type-wheel of Mr. Hughes' system is the same nearly as that of House, with the important difference, that it does not stop to print, but imparts an impression with ink on

the paper itself while revolving at the rate of 130 revolutions per minute, or, it prints a letter at every pulsation of the telegraph; while that of House requires seven, and Morse three and a half. The sensibility of the combination of Hughes is so great, that the simple contact of zinc with copper wire gives sufficient power to work it. The operating of the type-wheel is very simple and effective. The key-board contains twenty-eight keys, and is operated like that of House. Suppose there are twenty-eight spaces on the circumference of a cylinder, at equal distances, and a peg upon the end of each key, so arranged that, upon being depressed, it enters into an allotted space once during each revolution; upon entering the space it completes the circuit; by so doing it causes the type-wheel to make the impression of a letter; nothing could be more perfect. In practical operation, however, the movement by weights required such a complication as to lead to continual breakage. It was also found that the high degree of sensitiveness, which was to cause the machine to operate longer distances without relays, was a serious objection, since no insulation being perfect, any change in the weather disconcerted it. To obviate these difficulties, a combination of the Hughes and House has been perfected, and is now used by the American Telegraph Company. The combination is so perfect, that six letters may be printed at every revolution, and as the machine runs 140 revolutions per minute, it gives the enormous result of 50,400 letters, or 10,080 words, per hour. This number is, however, far beyond practicability, since no operator could manipulate with such rapidity. The ordinary speed with the electro-magnetic governor of Mr. Phelps is 2,000 words per hour. The usual rate on the Morse line is 1,000 per hour, and on the House, 1,800 per hour.

These are the principal inventions that have brought the telegraph system to its present perfection. It is but fifteen years since the first line was constructed, and there are now 50,000 miles in operation on this continent, having 1,400 stations, and employing 10,000 operators and clerks. The messages are estimated at 5,000,000 per annum, paying $2,000,000; in addition to which, the press pays $200,000 for despatches.

The wire used for the telegraph is of iron, No. 9. This metal conducts only about one-seventh as well as if of copper; but it is preferred for its superior strength and cheapness. The best prepared is coated with zinc. Without such coating, especially near the sea, it would rust off in a very few years. With the coating, it may have been in use ten years, and will still be in good preservation. When the distance between the supports is necessarily great, as river crossings, and the like, steel wire is used. The most important point in the construction of the lines is insulation; and this is very defective. The materials mostly used are glass; glass protected by iron; glass inserted in pine-wood, soaked with shellac; baked clay; white flint; and bone-rubber. All these are very imperfect; and yet, upon every 500 miles of wire, there are 15,000 of these imperfect insulators mostly affixed to chestnut posts, that are green. There is little matter of surprise, therefore, that constant interruptions occur, and that in wet weather most lines are unmanageable. The cost of a line is $61 per mile. The stations, or relays, are at certain distances from each other; and when a break occurs in the line, the operator ascertains on which side of him it has occurred, east or west. If east, he sends out a repairer to search until he comes to the next station. The operator there, meanwhile, has ascertained that the break is west of him, and he sends out a repairer to search until he meets the other repairer coming east, and the two repair the broken wire in a very simple manner.

The Bain system was completed in 1849, and is one of the simplest construction. There is no magnetism used; only the chemical effects of the current are necessary. A metallic disc, moved by clock-work, receives a sheet of prepared paper. Upon the paper rests a screw-plate, which serves to guide a pen in regular spiral lines from the inner to the outer edge of the disc. The current passes through this paper to the earth, and a very small battery will cause the pen to leave a blue mark upon the paper at 250 miles distant. This system was set up on the Boston line, and was afterward united with the Morse system. This adoption of the chemical effects of electricity has led to various modes, by which *fac-similes* of handwriting may be transmitted to long distances with the greatest rapidity, say 19,500 words per hour!

This system it is which excited much interest in the public mind some time since, from

the idea that it could transmit signatures; that a person in New York might, supposing the Atlantic cable in operation, sign his name to a bill in London. This was invented by M. Caselli, of Florence. The despatch is written upon tin-foil, and the copy is blue, upon white ground. The ingenuity of the system consists in the fact that the resistance of the ink to the passage of the electricity reverses the polarity in the point of the receiver. From negative it becomes positive, producing upon paper a colored and perfect image of the original despatch. The chemical effect is so delicate, that the minutest traces of writing or drawing are accurately reproduced. The method by which this is done remains a secret with M. Caselli. The commercial world were much interested in the idea of writing to any distance by telegraph, but it is not likely to come speedily into general use.

The first line constructed in the United States was from Washington to Baltimore, in May, 1844, a distance of forty miles. It was then extended to New York, a distance of 250 miles. In 1845 it reached Boston. From this great northern line branched one of 1,000 miles, from Philadelphia to St. Louis; another, of 1,300 miles, *via* Albany and the lake cities, to Milwaukee; a fourth, of 1,395 miles, from Buffalo to Halifax. A line was constructed of 1,200 miles, from Cleveland to New Orleans; and one of 1,700 miles, from Washington *via* Charleston, S. C., and Savannah, Georgia. In 1851 there were seven Bain lines in operation, over 2,000 miles; eight House lines, having 3,000 miles of wire; and 67 Morse lines, having 20,000 miles. In the autumn of that year, the Magnetic Telegraph Company, having lines extending from New York to Washington, and the Bain Company, having lines over the same route, were consolidated. In the following spring, the Morse and Bain lines, Boston and New York, were united under one company. This was followed by the union of the Morse, Bain, and House lines, New York to Buffalo. The Rhode Island Telegraph Company, having lines between Worcester, Providence, Fall River, Taunton, New Bedford, Warren, and Bristol, were sold in 1853 to the Morse and Bain line, called the New York and New England, for $5,000. Their cost was $10,000. In the fall of that year, all the leading lines west, south, and north-west, were united in interest. There then remained in that year only the House lines between New York and Washington, and New York and Boston; all others having been sold out to rival lines. The receipts of the Magnetic Telegraph Company, which was the first organized, were in 1847, $32,810; in 1848, $52,252; in 1849, $63,367; in 1850, $61,383; in 1851, $67,737; in 1852, $108,232. The most profitable of all lines was the Maine Telegraph Company, from Portland to Calais, Maine, 306 miles. This company paid about 20 per cent. per annum up to 1855, when it was leased to the American Company. In 1853 it bought the Portland and Boston lines out of its earnings, and divided 50 per cent. in stock. In 1855 the American Telegraph Company leased that line at a rate that gives 10 per cent. on the stock. It leased many other lines, until, in the beginning of the present year, it had consolidated all the lines from New Brunswick to New Orleans; thus acquiring the exclusive use of all the patents of the various telegraphic apparatus in use. The company has 25,000 miles of wire in operation, and a capital of $1,500,000. The receipts of the company for the six months ending May, 1860, were $485,395, giving net profits of $123,400. This process of consolidation, however, marks an immense loss of money on the part of those who have subscribed for telegraph lines, mostly arising from the severity of the competition. The use of the telegraph by the daily press is such, that the Associated Press pay to the various lines $200,000 per annum, a sum sufficient to maintain a line from New Orleans to Halifax; and it may at any time become the sole director of the whole. The New York press pays one-half this amount, and the remainder is divided among the papers of other sections; the country papers paying about $30 to $40 per month. The great impulse to telegraphing west was given by the *Herald*, in 1847. In that year Mr. Clay was to speak in Lexington, eighty miles from Cincinnati, on the Mexican war. Horses were relayed every ten miles. When the speech was taken down by the short-hand writers, it was carried to Cincinnati in eight hours, and was issued by the *Herald* next morning. The expense was $500.

At the commencement of 1848 there were 3,000 miles in operation in the United States; in 1850, 22,000; in 1853, they had increased to 26,375; and at the present time there are 50,000 miles on the continent.

The number of messages sent each year is estimated at 5,000,000; giving a revenue of $2,000,000, and employing 10,000 operatives and clerks.

A message throughout the United States and British provinces is scaled to ten words; beyond which, the price for each word is generally about 20 per cent. less. On the line from Savannah to New Orleans it is 50 per cent. less for each added word; from Boston to New York, 25 per cent. less; and from St. Louis, westward, 16 per cent. less. The average may be considered at 20 per cent. discount on all words over the first ten. No charge is made for signature or address. Thus, a message may be transmitted:—

"Tremont House, Boston, Massachusetts,
January 1st, 1859.

"To John James Doe, Esq., No. 500 William street, 3d story, room No. 25, New York city.

"Purchase for me 1,000 bbls. of flour, and ship to me at New Orleans, immediately. 44.33.

"WILLIAM RICHARD ROE."

The above is the form of a message, usual on the American lines. There are fifteen words. According to the tariff hereinbefore mentioned, for the first ten words the charge is 40 cents, and the five added words 3 cents each, or 15 cents: total, 55 cents. The figures 44 mean, "Answer immediately by telegraph;" and the figures 33 mean, "Answer paid here." These figures are free. Each number is counted as a word. The telegraph companies in the United States and the British provinces solicit particulars as to address, and the policy is good. In Europe, many men locate and remain a lifetime in the same building and in the same business. Like cases rarely occur in America. In the former country, a brief address is sufficient; but in the latter, particulars are necessary. Experience has taught that it is best for the telegraph to encourage its patrons to be full in address. In the regular form, forty-four words are transmitted in one despatch for 55 cents. There is no charge for delivery. The telegraph encourages explicitness in the writing of a message, and discourages the use of ciphers formed by letters or figures. And for the purpose of discouraging laconic despatches, the companies have adopted the liberal discount in the tariff on all words over ten in a message. It encourages the patrons to write their despatches full and intelligible.

In most of the American states, penal laws have been adopted, from time to time, for the protection of telegraph lines. At the opening of the courts, the judge embraces the question in the charge to the grand jury, requiring that body to indict every person who may be guilty of a violation of the law. For the honor of the people, however, but few cases have occurred requiring the exercise of that duty. In the early history of telegraphing, the most formidable objection to overground lines, was the liability of interception by malicious and mischievous persons, in the breaking of the lines, etc. Experience has proven that the people do more to maintain the lines in order than to disturb them. The penal laws adopted are, moreover, less severe, and it cannot be doubted, but what they have had a salutary influence. The laws are of the following form and tenor, viz.: Any persons who shall intentionally and unlawfully injure, molest, or destroy, any of the lines, wires, posts, instruments, abutments, or any of the materials or property of any telegraph company, association, or owner, or shall, by any means whatever, interrupt the working of any line of telegraph in the transmission of despatches or otherwise, shall, on conviction thereof, be deemed guilty of a misdemeanor, and be punished by fine not less than $500, nor more than $1,000, or imprisonment in the penitentiary for a term not less than one year, nor more than three years, or both, at the discretion of the court having cognizance thereof.

PENALTY FOR REFUSING TO TRANSMIT DESPATCHES.

In most of the states, penal laws have been enacted, relative to the transmission and reception of despatches by the telegraph companies. Any despatch, with the money offered at a station, cannot be refused by the telegraph unless it involves the violation of the patent rights of another company. No one can be excluded from sending messages over any line, and by any route, that he wishes, except in the case above cited. From one of the acts, I extract the following, viz.: "Every such company, and every owner or association, engaged in telegraphing for the public by electricity, in this state, shall receive despatches from and for other telegraph lines, companies, and associations, and

from and for any individual; and on payment of the usual charges for transmitting despatches, according to the regulations of such company, owner, or association, shall transmit the same faithfully and impartially, and in the order in which they are received; and for every wilful neglect or refusal so to do, the company, owner, or association, as the case may be, shall be liable to a penalty of not more than $100, with costs of suit, to be recovered in the name and for the benefit of the person or persons, association, or company, sending or desiring to send such despatches."

Such enactments as the above originated some years ago, when one of the leading companies refused to receive despatches from or for lines holding rival positions. The rejecting of these despatches caused those in rival interest to memorialize the respective legislatures for the passage of laws of the nature as above given. The legislatures promptly passed the necessary laws, though, for a combination of reasons, they have not been practically effective, owing to the patent laws of the land limiting their enforcement. Upon the expiration of the patent franchises held by the companies, then the special law, with its penalty, can be enforced. The common law will guarantee the right to any one to command the transmission of his despatch, equally with all others, on its presentation, with the money, at any telegraph station.

The change in the means of communication between distant points, within a quarter of a century, is one of the most remarkable evidences of progress. Just before the introduction of railroads as a means of communication an important case was pending at Washington in which certain parties in Boston had large interests. The long looked for decision was about to be reached amid the greatest anxieties, when news arrived at Boston which it was of the highest importance should be placed without delay in the hands of Daniel Webster. The mail was too slow—an express was required; relays of horses every ten miles had been prepared in anticipation, and a gentleman started with the news, vaulting from saddle to saddle as he reached the relays, still urging the fresh animal to its utmost, and allowing himself no rest. Massachusetts, Connecticut, New York, New Jersey, Maryland, were all threaded with energy, the faculties of the man evidently flagging as Washington came in sight; but the skilful rider still urged his noble animal, which passed the gate of the last relay and pitchpoled forward dead as he fell. The rider gaining his feet held out the papers and his watch to expectant hands with the exclamation, "I am within time; seventy-two hours from Boston." This was a distance of five hundred miles, or seven miles an hour average. The bill for dead horses was $1000; and the rider, a powerful man, suffered a dangerous nervous fever as a consequence. Had that gentleman, when he recovered sufficiently to receive the admiring attentions of the public, been told that he would live to see the same intelligence conveyed over the same space in a few minutes, at an expense of a few dollars, or that he himself might again cover the ground in twenty hours, at an expense of ten or twelve dollars, and without more fatigue than it would cost him to remain in his chair at home, he would have supposed his own delirium to have possessed the speaker; nevertheless he has lived to witness such a result. The cut represents the disparity between horse and lightning.

THE ARTS OF DESIGN IN AMERICA,

FROM 1780 TO THE PRESENT TIME.

CHAPTER I.

PAINTING, SCULPTURE, AND ENGRAVING.

HORACE WALPOLE says, in his "Anecdotes of Painting in England" (writing in 1762): "As our disputes and politics have travelled to America, is it not probable that poetry and painting, too, will revive amidst those extensive tracts, as they increase in opulence and empire, and where the stores of nature are so various, so magnificent, and so new?"

These lines were penned, perchance, in grave prophetic faith, but it may be that they were only idle speculations—a play of fancy, meaning nothing. Certain it is, that were the critic ever so much in earnest, very little could he have expected the full and noble response which so short a period would make to his query.

Little could he or any one have foreseen the rapid growth of these "extensive tracts" in population and in every phase of material life; still less the wonderful strides which they have made in all branches of mechanical and industrial art; and least of all, their achievements in the higher and æsthetic arts of design. Little could he have dreamed that within a period seemingly insufficient for the construction even of the rude foundations of empire, our country would have reached that point of refinement and intellectual development which gives it, in ample store, its own literature and its own arts—both with a strong and peculiar individuality of character and life.

The only artists in America in Walpole's time were a few strangers—Englishmen for the most part—who had wandered hither in quest of a fortune which their very humble talents had failed to win at home. They did little or nothing toward the development of the public taste, and left no works to honor the future; though they may, perhaps, have served, in some measure, to open the path for the distinguished group of *native* painters who, quickly succeeding them, fairly and surely lighted the lamp of art which now burns with such pure and ever-growing brightness.

The earliest of these pioneers, whose name has been preserved, was John Watson, a native of Scotland. He crossed the seas and set up his easel in Perth Amboy, in New Jersey, in the year 1715. In this little port, which was then thought destined to be what the city of New York is now—the commercial emporium of the country — Watson painted portraits, such as they were, through a long life. He appears to have had plenty of "sitters," and to have grown rich upon the fruits of well-employed industry; but we can gather no intimations of the state of the popular taste at that time through the medium of his works, inasmuch as none of them now remain for our inspection. Watson was buried about the 22d of August, 1768, in the old church-yard of his adopted village, at the venerable age of eighty-three years.

Our next pioneer was John Smybert, a stronger man, much, than Watson, and one who, though he painted no pictures to be treasured in our galleries, yet left footprints of good incentive and example, which we may clearly trace beneath the subsequent march of greater gifts. Copley, though but thirteen years of age at the time of Smybert's death, confesses indebtedness to him and his works. So also does Trumbull, who at one time painted in the apartments he had occupied, and in which many of his pictures still remained; while Allston is thankful for the advantage he enjoyed in the permission to copy a head which Smybert had executed after Vandyke. Smybert accompanied Bishop Berkeley to America in the year 1728, at the age of forty-two. Like Watson, he was a Scotchman, and like him, again, he pursued his craft in the colonies with gratifying financial success. He lived in Boston in high public

favor until 1751, leaving behind him many portraits of the distinguished characters of his time.

Nathaniel Smybert, a son of John Smybert, followed his father's profession worthily in Boston for a short time, and, according to the opinion of cotemporary critics, gave promise of more than ordinary talents. No record of him remains beyond the meagre facts here mentioned, and the additional one that he died early.

While the Smyberts were planting the seeds of art in Boston, there was in Philadelphia a Mr. Williams, an Englishman, remembered gratefully by West as the man who awakened his love of pictures by lending him books and by showing him the first works in oil which he had ever looked upon. During the same period, Woolaston and Taylor were also in Philadelphia; a Mr. Hesselius was at Annapolis in Maryland; a Mr. Theus in Charleston, and other laborers were in Virginia.

Besides the foreign adventurers here spoken of, there were a few native artists scattered over the country during the ante-revolutionary period of our history. It is hardly desirable to recall even their names, or to add to our list of the yet earlier strangers; since, despite the service their little light may have done, in the then deep darkness, not one of them all possessed more than the most moderate talent, and not one will be remembered excepting in the way in which they are now so briefly referred to—that is, in consideration of the *initial* times in which they chanced to live.

The birth of American art was not in any portion of our colonial epoch, but singularly and felicitously enough, was in that day of happy augury when our country itself sprang into life, and started upon its conquering course of national development and power; and with equal strangeness and equal felicity, the very beginning of our individual existence as a people produced, on a sudden, full-grown artists of first-rate genius, as it did Minerva-born statesmen, soldiers, and philosophers.

During the progress of our great revolutionary struggle with the mother land, and at the time of our successful emergence from that trial, Benjamin West, born in the forests of Pennsylvania, was reaching the highest honors in the art world of London, surpassing all native competitors, becoming the successor of Reynolds in the presidental chair of the English Academy, and enjoying the most distinguished consideration, the patronage, and the personal friendship of the very monarch against whom his countrymen were waging angry war.

It is, then, with Benjamin West, and with the birth of our country as an independent nation—about eighty years ago, as we now write—that our story of American art properly and prosperously begins. We shall, however, say but little of West, since the space that has been allotted to this subject does not afford room for an extended notice of any one. Though we may rightfully honor him as the father of American painters, and may write his name first on the long catalogue of eminent laborers in the noble field of art which we now possess, yet, the fact that the greater part of his professional life was spent in England, and that his chief success was won there, places him, in one sense, among the painters of that country, rather than of this; just as the life-long residence among us of a foreign-born artist may make him ours, instead of his own countrymen's.

West was born in 1738, in Pennsylvania, as we have already said, near Springfield, Chester county. His parents were Quakers, and their habits of life, together with all surrounding circumstances, were such as to discourage rather than foster a predisposition toward the study of art. The bent of the boy's mind was, nevertheless, early and powerfully manifested. The sight of Williams' pictures inflamed his youthful predilections to such a degree that, in want of better pencils, he manufactured a supply from the stolen fur of his mother's favorite cat; in want of subjects, he, while yet a child, seized upon his infant sister sleeping, all unconscious, in her cradle; and in want of pigments, he borrowed ochres of the Delaware and Mohawk Indians, and indigo from the maternal laundry! He studied after a while in Philadelphia, and subsequently painted portraits in New York. At the age of twenty-one he went abroad, and after a tour through the art cities of the continent, he established himself in London, where he afterward chiefly resided, rising rapidly into popular favor, until, upon the death of Sir Joshua Reynolds, the first president of the Royal Academy, his position as the head of the English school was affirmed by the high honor of his election to the vacant chair. This distinguished position

he filled with great dignity until his death, on the 11th of March, 1820, at the advanced age of nearly eighty-two years.

West's fame was won chiefly in the noble field of historical painting—a department which his brother artists of America have not continued fittingly to cultivate; though one in which they cannot, in due time, yet fail to distinguish themselves no less honorably than they have already done in landscape and portraiture; so rich and boundless are the themes at their command, and growing with every passing year yet more beautiful and noble in aspect.

Among the chief productions of his skilful and most industrious pencil, we may mention the Battles of the Hague and the Boyne; the Death of General Wolfe; the Return of Regulus to Carthage; Agrippina Bearing the Ashes of Germanicus; the Young Hannibal Swearing Eternal Enmity to the Romans; the Death of Epaminondas; the Death of Chevalier Bayard; Penn's Treaty with the Indians; Death on the Pale Horse; and Christ Healing the Sick. Many of his works are now in America; among others, Death on the Pale Horse, which is in the galleries of the Pennsylvania Academy of Fine Arts in Philadelphia; and Christ Healing the Sick, also in Philadelphia, in the Pennsylvania Hospital, to which it was given with noble generosity by the artist himself.

In the same year in which West was born in Pennsylvania, John Singleton Copley, another distinguished man in the earlier days of American art, appeared in the city of Boston. The one, like the other, after following his profession at home for some time, went to London, and there continued to live and labor for the rest of his days. The simultaneous appearance of these two gifted men, at this early period of our country's progress, and in sections of the Union then so far separated, was, as Cunningham says, when alluding to the circumstance—most "noteworthy." Copley was occupied for the most part with portraits, though he made successful incursions at intervals into the domains of history. One of his best works in this department of the art, and that to which he first owed his fame, was the large canvas representing the Death of the Earl of Chatham. Copley died in 1815, five years earlier than his *confrère*, Benjamin West. Many of his pictures are now treasured in the galleries and in the private collections of Boston, and in other parts of the Union. Lord Lyndhurst, of England, was a son of this artist.

In 1754, just sixteen years after the birth of West and Copley, Gilbert Stuart, of Rhode Island, came upon the stage, the earliest of that gifted line of portrait painters whose works have placed this branch of the art as high in America as in any part of the old world. Stuart, with Trumbull as a companion, studied under West in London, where he afterward painted successfully, and in due time rose to great eminence. Unlike his distinguished predecessors, West and Copley, he returned, though, at length, to his native land, and after some years practice of his art in Philadelphia, Washington, and Boston, he died in the latter city in July, 1828, in his seventy-fifth year. His name is familiar to the public at large, through his great picture of Washington, which he repeated for various societies and state legislatures, and which is spread over our land in every style of the graver's art. He painted noble portraits of many other of the distinguished people of his time—from presidents to private gentlemen. His works are cherished among us as master-pieces and models, exerting still, as they have ever done, a marked influence upon the character of American portraiture. The especial characteristics of his style were a marvellous freedom and boldness of touch, a wonderful freshness and fulness of color, and a truth of character which placed the very soul of his sitter before you in the most striking individuality. "He seemed," says a cotemporary writer, "to dive into the thoughts of men—for they are made to rise and speak on the surface;" and Sully is reported to have remarked of one of his portraits: "*It is a living man looking directly at you!*"

Stuart was a man of eminent social disposition and abilities, a famous wag and humorist, fond of a jest, and overflowing with anecdote. Innumerable amusing illustrations of this trait in his character, sprinkle and enliven the recorded and remembered records of his life.

Another pupil of West's, at this period, was Robert Fulton, who was born in Little Britain, in the county of Lancaster, Pa., in 1765. Fulton commenced the practice of art in 1782, at the age of seventeen, but continued it only a few years, being more powerfully led toward those scientific studies to which his genius was, as the end proved, better adapted; and from which sprang that

glory of our time, the practical and permanent application of steam to navigation. Fulton's short career as an artist left no legible mark; what might have been his achievements had he continued in the guild, we cannot say, and are, indeed, careless to inquire, in view of his immortal labors otherwise. American art is willing to spare him, as it has since spared the illustrious Morse, to its graver sister, Science; and is no less proud of the practical blessings he has bestowed upon his country, than it would be of the highest æsthetic success. Fulton died upon the 24th of February, 1815.

Next among the men of service and influence in the cause of art in America was William Dunlap, who was born in Perth Amboy, N.J., February 19th, 1766, and who commenced the profession of portrait painter about 1782. Dunlap will be remembered as an artist more for his long life of reverent and persistent devotion to the craft, and for the respect and estimation which his character gained for it, than for his success at the easel; though he both attempted and achieved works which were commended at a less brilliant period than the present. He was also an author of considerable ability. Among his works is a "History of the American Theatre," published in 1832, and another of the New Netherlands, which appeared in 1840; a memoir of Charles Brockden Brown, and various plays of considerable interest. But the most important of his literary labors is the only record we possess of the early story of American art, an invaluable work under the circumstances, and one for which he will be ever remembered, although clumsily constructed and injured by a most wearisome medley of irrelevant matter. In this "History of the Arts of Design," Dunlap gives us his own biography with great discursiveness and fulness, though with humble and characteristic reverence, exhibiting his own career as one to be shunned rather than followed. 'I look back," he says in mournful reflection, "upon a long life, with the persuasion that what is called misfortune in common parlance is caused generally by our own folly, ignorance, mistakes, or vices." To read his story as recorded in his "History of the Arts of Design," is to read a sad record of untoward circumstances, varied effort, and ever-following failure; but, withal, a praiseworthy and even exalted longing to be of use to his fellows and his country. His pictures were generally of a very ambitious character, scriptural themes on canvas twenty feet long. Among these productions of high art were Christ Rejected; Bearing the Cross; Calvary; and Death on the Pale Horse; the first of which was made up in part, and the last wholly, from West's pictures of the same names.

Besides thus remembering Dunlap for the art records which he has preserved with so much honesty and industry, and for what he would have done, and sought to lead others to do at the easel, he must be honored as one of the founders and the first vice-president of our leading art society, the National Academy of Design in New York. Dunlap died on the 28th of September, 1839.

To the life and works of Colonel John Trumbull our early art owes great obligations, though it is much the fashion at this day to disparage and deny his genius. Trumbull's name is familiar to the people through his grand pictures of revolutionary story which decorate the walls of the national capitol. He was the son of the first governor of Connecticut, in which state, at Lebanon, he was born on the 6th of June, 1756. To high birth he added, through life, high character and learning, and great culture and dignity of manners. His early studies were, as was the case with all the artists of his time, pursued abroad and under Benjamin West. He entered the American army at the commencement of the Revolution, and was an eye-witness of, and participant in, some of its most stirring scenes, of which the subsequent delineation won for him his fame as a painter. The four large works executed for the government, are: the Declaration of Independence; the Surrender of Cornwallis; the Surrender of Burgoyne; and Washington's Resignation. An appropriation of thirty-two thousand dollars was made for these pictures, besides which, the artist received considerable emolument from their public exhibition through the country. Among his other historical works may be mentioned the Battle of Bunker Hill; the Death of General Montgomery; Capture of the Hessians at Trenton; and the Death of General Mercer at the Battle of Princeton. In addition, he executed various scriptural subjects, and many portraits, among which was a full-length of Washington, painted in 1792, in the artist's best days. A few years before his death, he presented his collected works to Yale.

College, upon the condition that they should be suitably housed, and that he should receive an annuity of one thousand dollars. The college erected a gallery on its grounds in New Haven, where the pictures were placed, and where they now may be seen.

Colonel Trumbull was president of the American Academy of Fine Arts, in New York, until that effete organization was superseded in 1826 by the establishment of the National Academy of Design. Trumbull did not, at any period of his life, possess much of that genial fellowship and social habit so characteristic of artists, and so essential to personal popularity in the profession. He died in 1843, at the venerable age of eighty-seven years, leaving behind him a name unspotted, and a claim to distinguished remembrance in the history of art in America, despite all the faults of his works, and however much they have since been or yet may be surpassed.

Charles W. Peale, born at Chesterton, on the eastern shore of Maryland, April 16th, 1741, was an active colaborer with Trumbull and his fellows, but was not eminently successful at the easel. He was a man of versatile gifts, and at various times dabbled in all sorts of crafts. He made his brothers, sisters, sons, and daughters all artists. He died in 1827, at the age of eighty-five years.

John Vanderlyn was born in Kingston, in the state of New York, in October, 1776, where he died at the age of seventy-six years, in 1852. Aaron Burr was struck with his boyish performances in art while he was a blacksmith's apprentice in his native village, and befriended him at the commencement of his career. At the age of twenty he made the foreign tour, so customary at the time, studying in Paris and other cities of the continent of Europe. In the year 1817, the corporation of New York having given him the lease of the ground, he erected the building in the north-east corner of the City Hall park in New York, afterward used as the Post Office, and always known as the Rotunda. Here he exhibited in succession a series of panoramas, the first seen in this country, of Paris, Athens, Mexico, and Versailles, with his own pictures—Marius, Ariadne, and other subjects. The unexpected cost of the building, and the resumption of the lease by the city before the artist had fairly tried his speculation, made it a matter of serious pecuniary loss to him. Among his chief pictures are the Landing of Columbus, which fills one of the panels of the rotunda of the Capitol in Washington—one of the pendants of those already mentioned by Trumbull; his fine picture of Marius Musing over the Ruins of Carthage, painted in 1808; and his superb full-length figure of Ariadne, so beautifully engraved by Durand; portraits of Presidents Madison, Monroe, and Jackson; of Calhoun, De Witt Clinton, and other distinguished men. He exerted a most healthy influence upon his fellow artists, and his works remain as models for future study.

Edward G. Malbone was born in Newport, Rhode Island, in 1777, and died in Savannah, in May, 1807, in his thirty-second year. During his short life he won high reputation as a miniature painter; and his works in this department are still preserved in various parts of the country as masterpieces of art. One of his most successful productions—a picture of three half-length female figures, called The Hours—is now in the possession of the Athenæum in Providence.

Rembrandt Peale, whose history belongs to this period, though but so recently deceased, was born of a family of artists in Pennsylvania, on the 22d of February, 1778. He was an active, earnest man in his time, and did much in the service of art, by his own works, and the incentive which his example gave to others. His picture of Washington, painted in the artist's boyhood, and afterward often repeated by him, is well known; as also his grand work called the Court of Death. His long and honored career, which embraced nearly the whole period of our art history, was closed on the 3d of October, 1860.

John Wesley Jarvis, one of the most distinguished portrait painters of this era, was born in England in 1780, and brought to America at the age of five years. He painted innumerable pictures, many of them of great merit; and did good service as the instructor of Henry Inman, and other distinguished artists. He was a man of eminently social disposition, with a great turn for humor—traits of character pleasant enough when well employed, but which he unhappily permitted to lead him into low and ruinous dissipation, which impaired his artistic powers, and brought a life begun under the happiest promise to the dreariest end.

Charles B. King, born in Newport, Rhode Island, 1785; Alvan Fisher, born in Needham, Massachusetts, 1792; William E. West,

and William James Bennet, born in London, 1787, may be mentioned in this part of our story as men of mark and influence in their day, though they left no works behind them of great excellence. Mr. King, indeed, still lives at an advanced age in the city of Washington, where he for many years virtually filled the fashionable position of court painter, preserving to posterity the likenesses of presidents, ministers, statesmen, and the chiefs of the Indian deputations who came to see their great white father at the capital.

The life of Thomas Sully fills a delightful page in the history of American art. Born in England in June, 1783, he came hither at the age of nine years, struggled bravely through an indigent youth and a laborious manhood to a position of high honor and usefulness. He is still pursuing, at his residence in Philadelphia, the profession which he has through many years so effectually contributed to advance. His pictures are characterized by grace and beauty of feeling, and a daintiness and freshness of color well deserving of most careful study. He has painted many full-length pictures of distinguished personages, among them one of Queen Victoria, which was exhibited with great success in all the Atlantic cities, and numerous fancy heads of great poetic beauty.

Charles Fraser, who was born in Charleston, South Carolina, August 20th, 1782, was an intimate and esteemed associate of the best men of the days of which we write. His works have materially advanced the standard of public taste in his native state. After obtaining a competency by the industrious pursuit of legal studies, he began the profession of artist in earnest at the age of thirty-six. Following the successful lead of his friend Malbone, he turned his attention especially to *miniature* painting, in which style he executed a picture of Lafayette, and of nearly all of the prominent men of his region. An exhibition of his collected works in 1857, included 313 miniatures, 139 landscapes, and other works in oil.

Chester Harding, a veteran still on the stage, was born in Conway, Mass., September 1st, 1792. His humble parentage sent him at first to farm work and chair-making. After the war of 1812, in which he served, he engaged in cabinet-making in Caledonia, New York. He subsequently went to the head waters of the Alleghany, and thence on a raft to Pittsburg, where he worked at house-painting; he returned home through the forest, two hundred miles, on foot, with no guide but blazed trees. Again visiting the west with his family, he worked from sign painting into portraiture; thenceforth gradually rising in his profession, until he numbered among his sitters such men as Madison, Monroe, Marshall, Wirt, Clay, Webster, Calhoun, and Allston, in America; and the dukes of Norfolk, Hamilton, and Sussex, Lord Aberdeen, and Samuel Rogers, in England.

Washington Allston, one of the most illustrious of our artists, was a native of South Carolina, having been born on his father's plantation at Waccamaw, in that state, on the 5th of November, 1779. He was a high-toned man, of poetic temperament and scholarly tastes, and was eminent as a poet as well as an artist. He was a student of the Royal Academy in London in 1801, and an exhibitor on the walls of that institution the following year. At this early period of his life he became an intimate friend of Coleridge and Thorwaldsen, West and Fuseli, and other distinguished men. In a second visit to Europe, about 1810, he exhibited his famous picture of the Dead Man Revived, which is now in the Pennsylvania Academy at Philadelphia. For this work a prize of 200 guineas was awarded to him by the British Institution. His next considerable works were: St. Peter Liberated by the Angel; Uriel in the Sun, which was painted for the duke of Sutherland; and Jacob's Dream. In 1818 he returned home, with his picture of Elijah in the Wilderness, which afterward went back to England. Within the next twelve years he produced in Boston his Prophet Jeremiah, now in the possession of Miss Gibbs, of Newport; Saul and the Witch of Endor; Miriam Singing the Song of Triumph, and other justly celebrated works. Among his smaller pictures, the Valentine and Beatrice, female ideal heads, are remarkable for their power of expression and strength of color. In the studio in which he finally settled himself at Cambridge, he painted Spalatro's Vision of the Bloody Hand; Rosalie; and his grand unfinished subject, Belshazzar's Feast. In his early life he was an intimate friend of Washington Irving, whom he almost won over to his own studies, as the author's profession may have attracted him, for during his life he made frequent incursions into the literary arena, publishing in London, in 1813, a poem entitled "The

Sylphs of the Season," and afterward the metrical satire entitled, "The Two Painters," the weird story of the "Paint King," "Monaldi, a Tale of Passion in Italy," followed after his death by a volume of "Lectures on Art." He was twice married, first in 1809 to a sister of Dr. Channing, and again in 1830. He died at Cambridge on the 9th of July, 1843.

Thomas Birch, a marine painter, and Joshua Shaw, a landscape painter, were born in England about the time of the Revolution, the latter in the year of the Declaration of our Independence. They became residents of the United States in childhood, and gained a reputation in their respective departments.

Among the popular painters of this time were Samuel L. Waldo and William Jewett. These gentlemen painted an immense number of portraits together, under the famous firm of Waldo & Jewett.

Our narrative now passes the line, as nearly as such a line may be drawn, between the artists of the revolutionary and immediately following years, and the earlier part of the present century. Already have we seen the arts firmly rooted in the love of the people and the genius of their professors; seen native artists grow up, and by their labors reflect high and imperishable honor on their country. In the continuation and the sequel of our history it will be our pleasure to see this glory ever brightening, and the public taste and artistic skill still more rapidly advancing hand in hand. This progress cannot, however, be better understood than by following, step by step, the lives of those from whose genius and works it alone springs. We therefore continue as we have begun, the chronological mention of the men to whom we are the most indebted for it.

We have already seen how our country had no sooner come of age than its early indebtedness to the mother-land for the humble aid of her Smybert and others, was promptly and nobly repaid by the fame which we sent her of a West and a Copley. Not content with this ample acknowledgment, we added to these high names at a later day those of Leslie and Newton, which she has inscribed upon the brightest tablet of her art achievement. Both these eminent artists were Americans by their parentage, though, through the chances of the moment, the former first saw the light in London. The latter was born in Halifax, in Nova Scotia, during a temporary visit of his parents thither from Boston. They established themselves in London, where they passed their lives in such successful labors as to leave a name and fame cherished zealously both by their native and their adopted homes.

The men most distinguished and the most serviceable in the cause of art in America, who came upon the stage at or near the beginning of the present century, are nearly all yet living to see the happy fruits of their toil, in the general diffusion of an appreciative and enduring love of art throughout the land, in the growing up of a community of artists, large and influential enough to have become an acknowledged and revered power in society, and in the firm foundation of a strongly individualized and healthful national school.

Among these great men, we should, perhaps, first of all, mention Samuel Findley Breese Morse, to whom (though he was drawn out of the profession as Fulton was before him, by the allurements of science) we owe much for the excellent labors of his pencil and the yet more excellent effects of his earnest sympathy with his art brethren throughout his long and illustrious life. It is to this strong and indefatigable love that we are, more than to any other agency, indebted for the foundation and success of our chief art society, the National Academy of Design. Morse was the leading spirit in this great enterprise. He was its first president; an office which he continued to fill with high honor for a score of years, and which, only that other duties required him to resign, he would have filled to this day. Prof. Morse was born in Charlestown, Mass., April 29th, 1791. His father was the famous geographer, the Rev. Jedidiah Morse. He was educated at Yale College under Dr. Dwight. In his twentieth year he went to England, and yet two years later successfully exhibited a large picture of the Dying Hercules at the Royal Academy. He had previously executed a plaster model of the Hercules, which he also displayed, and for which, greatly to his own surprise, he received the *gold medal* from the Society of Arts. From this happy commencement of his life as an artist, and from the portraits and other works which he subsequently produced, until other studies drew his mind away from the easel, we may fairly suppose that he would have reached the highest posi-

tion as a painter had he continued to seek it, and some regret at his loss to the arts may be permitted, even in view of what the world at large owes to his scientific studies in the priceless gift of the Magnetic Telegraph.

Charles C. Ingham, born in Dublin, 1796, is one of the bright lights of this epoch yet shining brightly among us. He was an earnest colaborer with Morse in the establishment of our National Academy, which has always owed and still owes much in its exhibitions to the productions of his easel—his exquisite pictures of fair women and brave men. He at this time fills the office of vice-president of the academy.

Robert W. Weir, who has been for many years, as now, professor of drawing at the Military Academy at West Point, holds a distinguished place among the older of our living artists. He was born on the 18th of January, 1803, at New Rochelle, in the state of New York. It is to his pencil that we owe that best of the pictures in the Capitol at Washington, the Embarkation of the Pilgrims, a work eminently illustrative of the thoughtfulness and conscientiousness of his genius. He has painted numerous historical compositions, *genre* subjects, landscapes, and portraits of great excellence.

Thomas S. Cummings, another of the founders of the academy, and always one of its officers, held high rank at this period in the department of miniature painting. Mr. Cummings was born in Bath, England, in 1804, and became a resident of the United States in early childhood.

John G. Chapman, born in Alexandria, Virginia, on the 11th of August, 1808, now residing in Italy, is well known as the painter of the Baptism of Pocahontas, in the Capitol at Washington, and as the author of innumerable designs in our illustrated books.

William S. Mount, born in Setauket, L. I., November, 1807, was the first American artist who achieved high success in subjects of a purely national character, in a series of happy pictures of the humbler features of our country life. His Bargaining for a Horse, Haymaker's Dance, the Power of Music, and other light themes, have been often engraved, and are familiar to everybody.

Francis W. Edmonds has produced many pleasant pictures in the same vein of quiet humor with Mount.

William Page, born in Albany, January, 1811, has distinguished himself, at home and abroad, in the field of portraiture. He has painted, also, many excellent classic themes, among them the Venus, recently exhibited through the Union with so much applause.

Henry Inman, born in Utica, N. Y., October 20th, 1801, was one of the most eminent artists of the time. He was a pupil of Jarvis, whom he soon surpassed, excellent as Jarvis was. He was a man of remarkable versatility, and worked with equal facility in portraiture, landscape, and history. He was the guest of Wordsworth, during a visit to England in 1844, at which time he painted a characteristic picture of the great poet, and that charming illustration of the scenery of his region, the Rydal Water. While in England, he painted, also, portraits of Dr. Chalmers, Macaulay, and other eminent people. The exhibition which was made, after his death, of his works, was one of the most interesting and varied ever seen in New York. Inman died on the 17th of January, 1846.

In coming now to the life and works of Asher B. Durand, we enter the great field of landscape art, in which our painters are so pre-eminently distinguishing themselves—that field first explored with such brilliant success by Durand, and his fellow-laborers Cole and Doughty, and which is now being brought to such high culture by the present host of younger men. Durand was the first of our landscapists to pursue that course of severe and earnest study of Nature herself, in all her details of form, character, and color, which is now universal among us, and to which (following the richness and variety of our scenery) our wonderful progress in this department of the art may, in a great measure, be ascribed.

Mr. Durand is president of the National Academy, in which office he succeeded Prof. Morse. Though now in the autumn of life (having been born as long ago as 1796), he is still as active and as efficient a worker, in his special field, as he was when he first entered its untrodden paths long years ago. Everybody loves Durand's landscapes, for they appeal to and satisfy the dearest emotions of the soul, in their deep-thoughtedness, their quiet and serene beauty, and their sweet poetic suggestion. No artist has more truly rendered the characteristics of our American scenery, or under a greater variety of aspects. Besides innumerable landscapes, many of them of great

size, he has painted a large number of excellent portraits, and various successful figure pieces. He was, too, before he became a landscape painter professionally, perhaps the best of our engravers upon steel; in which art, his skill is well attested by the fine print of Ariadne, after Vanderlyn. He is a native of Jefferson, in New Jersey.

Side by side with Durand—for they worked together through many fruitful years—was Thomas Cole, born on the 1st of February, 1801. He was a native of Bolton-le-Moor, in England, and was eighteen years of age when his father emigrated to America; yet so thoroughly did he acquire the spirit of American landscape, in all its most peculiar idioms, that never would he, of all our artists, be thought of foreign origin. While Durand painted our hills, and valleys, and waters in their more calm and contemplative mood, and in the bright, yet quiet garb of summer green, Cole loved to watch their more stirring and active humors, and to depict them in the gorgeous parti-colored vesture of varied autumn. The one, with delicate and dainty touch, records the gentle whisperings of the meadows, and lakes, and rivulets, while the other, with his freer and bolder pencil, transcribes the grander language of the cloud, or the snow-capped mountain crest, and of the turbulent and roaring torrent.

Cole's earlier professional life was through a series of hardships, trials, and poverty, which only the most persistent spirit and the truest genius could have conquered. It is a pleasant thing to record that the first real encouragement which he met with, the first recognition of his great merit, came from brother artists, when Durand, Trumbull, and Dunlap took him generously by the hand, and led his steps into the pathway of success and fame. His later years sped happily, in a beautiful home on the Hudson, in the midst of that charming mountain and river scenery, which his pencil has done so much to endear to us. His earnest, poetic temperament did not permit him to rest content with the literal delineations of natural beauty, but led him to embody them in imaginative conceptions, with high moral meanings.* To this noble ambition, we owe that great series of works representing the rise, progress, and fall of Empire, now in the gallery of the Historical Society in New York; that famous epic, in four parts, familiar to the world under the name of the Voyage of Life, in the possession of the Rev. G. D. Abbott, of New York; and the third group, left unfinished at his death, and now, we think, in the possession of his family, at Catskill, called the Cross and the World. Apart from these great serials, his principal productions are the Allegro and the Penseroso, the Home in the Woods, the Mountain Ford, the Hunter's Return, the Mount Etna, the Dream of Arcadia, the Cross in the Wilderness, and the Departure and the Return.

Cole died at his home, in Catskill, on the 11th of February, 1848, universally lamented, scarcely less as an artist than as a man of exalted principle, singular kindness of heart, and rare literary tastes and ability.

With the name of Thomas Doughty, we end our mention of the trio of which we have spoken, as the founders of our American school of landscape art. If his works, with all their poetical beauty, were, even in his best days, behind those of his *confrères*, and do not preserve the place they once had in the public esteem, it may be set down, probably, to the fact that, at the earlier period at which he commenced his studies, it was not the custom, as it soon after came to be, to go directly and implicitly to Nature for instruction. Doughty was born in Philadelphia, July 19th, 1793, and died in New York, July 24th, 1856. In his youth, he was apprenticed to a leather manufacturer, and afterward became a leather man on his own account. It was not until he was nearly twenty-eight years of age that he turned painter, and then against the counsels of good friends. He practised his art for many years in New York, and also in London and Paris.

Daniel Huntington was born in New York, October 14th, 1816. No pencil has contributed more to the healthful progress of our art, in elevation of theme, and refinement of treatment, than that of Huntington. Every thing he does is, in all the higher æsthetic qualities of art, a lesson to both artists and the public. His genius is of the greatest versatility, being equally at home in portrait, landscape, or history, sacred and profane.

Charles L. Elliott, born in Scipio, N. Y., in 1812, and now pursuing his art in the city of New York, sustains, in his vigorous style of portraiture, the fame early reflected upon this department of American art by Stuart and his cotemporaries. He is pre-eminent for the bold execution of male heads.

George A. Baker, of New York, is equally distinguished for his heads of women and children. Henry Peters Gray, also of New York, holds a high position as a painter of portraits, and of small pictures of *genre* and history. Of the latter class of works, his Pride of the Village, from Irving, is a most charming example. Thomas P. Rossiter is familiarly known by numerous large works, chiefly from scripture history, which have been exhibited to admiring throngs throughout the country. He has recently established himself in a pleasant home, at Cold Spring, on the Hudson. Arthur F. Tait is particularly happy in pictures of game and sporting life, a branch successfully followed by the late William Ranney. Thomas Hicks is among the most popular of the present group of portrait painters in New York. Hicks is now engaged upon a large picture of the living authors of America. Edwin White's great picture of Washington Resigning his Commission, painted for the legislature of Maryland, is a fair example of this artist's style and class of subjects.

Emanuel Leutze stands at the head of the living historical painters of the country. Much of his life has been passed in Dusseldorf, but he has lately returned home, and is pursuing his art in New York. A large picture of Washington Crossing the Delaware, is an excellent example of his vigorous and effective style.

P. F. Rothermel is one of the leading artists of Philadelphia, in historical subjects. The Lambdins, of Philadelphia, father and son, hold a distinguished place in the art, the elder as portrait painter, and the latter as painter of poetical and dramatic scenes.

F. O. C. Darley has achieved a world-wide fame, by his designs and book illustrations. Nothing can surpass, in beauty of conception, his charming outline drawings from Irving's "Rip Van Winkle," and "Sleepy Hollow," or his compositions from Judd's novel, "Margaret." He is now illustrating an edition of Cooper's works in thirty-two volumes, containing upward of five hundred designs. John W. Ehninger has been most successful in the same walk with Darley, besides which he has made many happy *genre* pictures in oil. E. D. E. Greene is justly famous for the classic beauty of his female heads; J. T. Peele for his dainty pictures of childhood; Rowse and Colyer for their charming heads in crayon; W. J. Hays for his animal subjects; Eastman Johnson for his domestic passages of negro and other humble life; Healy and Lang for brilliant portraiture; Wenzler and Stone for their female heads, and May in historical subjects.

Nearly all our landscape painters, after the trio already mentioned as the first who entered the field, are young men, many of them giving promise of a success even beyond that of their gifted fathers in art. The pictures of Church, who has not yet reached the middle of man's three-score years and ten, are famous the world over. Everybody has seen his wonderful picture of Niagara, and his still more popular Heart of the Andes. No works have done so much as those of Church to increase the foreign estimate of American art. Cropsey is now extending in London a fame fairly won at home. Kensett's pictures of our forest scenery are admired and loved by all. Mignot and the brothers Hart are among the best landscapists of this or any land, which may be said also in brief of Casilear, Gignoux, Gifford, Hubbard, Weber, Gay, Bierstadt, Brown, Shattuck, Colman, and Inness.

Our catalogue of bright names might run on almost forever, now that we have fully entered among the artists of our own day; but of them, great as is their genius—greater, indeed, in many instances, than that of any of their predecessors of whom we have said so much—it was not our intention to speak at length. Their name and fame is still rising; we meet them in our daily life, and gain of them that cotemporary knowledge which is better than all historic record; besides, our only desire was to gather up the fast fading mementoes of the early condition of art among us, and of the steps by which it has risen to its present noble state. This present is before us all, to delight our eyes, and encourage our hearts for the future.

We pass now to a brief glance at the remarkable performance of our young land in the noble art of Sculpture, a performance confessedly surpassed by no modern school.

Sculpture, as the more costly art, and as the less intelligible to the popular eye, of course *followed* painting in its progress among us as elsewhere. The surprise is that it should have followed so speedily and with such grand strides. It is possible that this happy result may have sprung in a measure from the circumstance that our first foreign visitors and instructors in marble art were men of the highest genius, instead of

the third-rate talent only which our early *painters* brought to us. It is seldom amiss to make a good start, and much is saved where there is nothing left to be *un*learned.

One of our first heralds of the chisel appeared in 1791, when Ceracchi, an eminent Italian sculptor, arrived at Philadelphia. He was scarcely less celebrated as a revolutionist than as an artist, and leaving France when the dangers there grew too thick around him, he marched over to the New World, with a scheme for building us a grand marble monument to Liberty. His project was submitted to Congress, which was then in session, but that body supposed that the public funds could be employed, at the moment, more advantageously in the cause of Liberty, than in honoring her with sculptured shrines. Washington, however, gave his personal assent to the idea, and headed a private subscription, by means of which it was hoped the required thirty thousand dollars could be procured. Not an inch, though, of the proposed hundred feet of stone ever rose from the ground. Instead of the monument, the sculptor employed his chisel upon busts; and, among others, executed fine portraits of the commander-in-chief, of Alexander Hamilton, of Thomas Jefferson, Geo. Clinton, John Jay, and Paul Jones.

On returning to France, Ceracchi's red republicanism reappeared in a madder form than ever, and he plotted to take the hated life of Napoleon, then first consul, even in the sanctity of his own studio, and while he should be sitting for his bust. He was afterward guillotined on a charge of complicity in the famous scheme of the "infernal machine."

Yet earlier than the time of Ceracchi's residence in the United States, Houdon, a celebrated French sculptor, was invited to visit this country for the express purpose of perpetuating in marble the form and features of Washington. The result of his visit was the full-length statue which now adorns the vestibule of the Capitol at Richmond, in Virginia. The sculptor's legend on this work reads thus: "*Fait par Houdon, Citoyen Français*, 1788." The Father of his country is here represented of life size, and in the military style of the Revolution. The figure stands, resting on the right foot, having the left somewhat advanced, with the knee bent. The left hand rests on a bundle of fasces, on which hang a military cloak and a small sword, a plough leaning near.

Another noble statue of Washington, by Canova, adorned the Capitol of North Carolina, at Raleigh, until that edifice was unhappily destroyed, and the statue with it, by fire, in 1831.

Of our native sculptors, perhaps the first who gave indications of talent above the humblest mediocrity, was John Frasee, born in Rockaway, in New Jersey, July 18th, 1790. A bust which he executed in 1824 of John Wells, now in Grace Church, in New York, was, says Dunlap in his "Arts of Design," the first portrait in marble ever attempted in the United States. Ceracchi's works were probably only modelled here, and were afterward put into stone at home. Frasee made excellent busts of Chief Justice Marshall, of Daniel Webster, and others. "He had advanced," adds Dunlap in 1834, "to a perfection which leaves him without a rival at present in this country." To those who know any thing of our sculptors of *this* day we hardly need say, that Dunlap lived too long ago to witness the real beginning of its brilliant history, and that the talent of Frasee, excellent as it was, did not even indicate the high rank the art now holds.

Shobal Vail Clevenger, who was born at Middleton, Ohio, in 1812, and died at sea in 1843, left behind him admirable busts of Webster, Clay, Allston, Van Buren, and others. His early death interrupted a progress which might have extended far toward the point which our sculptors have since reached.

In the year 1805, on the 6th of September, Horatio Greenough was born in Boston, to fill a distinguished place in the annals of American sculpture. He received *his* earliest instruction from a resident French artist named Binon, and at the age of twenty went abroad. After modelling busts of John Quincy Adams, Chief Justice Marshall, and many others, he executed, at the order of Fenimore Cooper, the novelist, his Chanting Cherubs, which was the first original group from the chisel of an American artist. This work was made in Florence, where he had permanently established his studio at this time. In 1831 he went to Paris to model the bust of Lafayette, and thenceforward received liberal commissions, especially from his countrymen abroad.

Through the influence of his generous friend, Cooper, he received a commission from Congress for the colossal statue of Washington, which now stands so grandly on the great lawn opposite the east front of

the national Capitol. This work was completed in 1843, after many years of industrious toil. Among others of Greenough's works at this period, were the Medora, commissioned by Mr. Robert Gilmor, of Baltimore; the Venus Victrix, in the Boston Athenæum; and the Angel Abdiel. In 1856 he returned to the United States to superintend the placing at Washington of his group of the Rescue, symbolizing the triumph of civilization, which he had executed in fulfilment of an order from Congress. It is supposed that the vexatious delays in the arrival of this work from Italy, together with the hurly-burly of American life, to which his long residence abroad had unaccustomed him, contributed to induce the attack of brain fever, from the effects of which he died, December 18th, 1852.

Greenough was educated at Harvard, and was a man of elegant attainments and accomplished manners. He was engaged in the delivery of a course of art lectures in Boston at the time of his last illness. An interesting memorial of Greenough was published by the poet Tuckerman in 1853.

The first general and popular acknowledgment, at home and abroad, of our success in sculpture, was won for us by the genius of Hiram Powers, and dated from the time of the exhibition of his Greek Slave. Not that this is by any means the best performance our artists have reached—for other men have followed with yet greater works; and among these others, one, of whom we shall speak, who has cast off the conventionalities of old art, and has, upon his own native soil, not that of Europe, gone beyond mere classic beauty, to the higher attainment of individual and national character and truth. Yet, as we have said, it was from the popular success of this statue of the Greek Slave that the world picked up and recognized the fact of the genius of American sculptors.

Powers is a native of Vermont; but, like most of our men of marble, resides and works abroad. He established himself long years ago in Florence, since which time we do not know that he has even visited his native land. He is an industrious worker, and has made innumerable busts, in addition to his more ambitious ventures into the field of poetry and the imagination. It is, indeed, in portraiture that his strength lies—with a temperament more practical than fanciful, and with a sympathy more with the real than with the ideal. His colossal figure of Eve, and his full-length statue of Calhoun, are preserved in South Carolina.

In the lamented Crawford, who was born in New York, March 22d, 1814, and who died in London, October 10th, 1857, we possessed a man of stronger and nobler grasp than any of his predecessors; a man, who not only *could* have done great things had he lived, but who did them even without living to the full years of ripe experience. Crawford was a poor boy, and began his art life in the humble occupation of a wood-carver. At the age of nineteen he was promoted to a place in the studio of Frasee and Launitz, in New York; and, when about twenty-one, he went to Rome, and became a pupil of the Danish sculptor Thorwaldsen. Here he toiled so unremittingly that he is said to have modelled no fewer than seventeen busts in the space of ten weeks, besides copying, in marble, the figure of Demosthenes in the Vatican. In 1839, when in his twenty-fifth year, he exhibited his Orpheus, with the warm congratulations of his master, Thorwaldsen, and other sculptors, and with the hearty approval of the public. From that period his fame continued to increase up to the hour of his untimely death. The Orpheus—which is now in the Athenæum in Boston—was followed by numerous admirable subjects from classical and scriptural history. Among his greater and later works, was the remarkable statue, in bronze, of Beethoven, executed for the Boston Music Hall; and the completion of which, at the foundry in Munich, was celebrated by a musical festival, at which the royal family of Bavaria, and a grand concourse of people, assisted. Afterward came the equestrian statue of Washington, which now adorns the Capitol hill at Richmond; where it was placed by the patriotism and liberality of the people of Virginia. This great work was cast in bronze in Munich, and sent home in 1857. Its pedestal rests upon a star-shaped elevation, with six points, upon which statues of Jefferson, Henry, Lee, and other illustrious sons of Virginia are to be placed. He executed orders from Congress for various works for the new Capitol, some of the most successful of which were his designs for the pediment and the great bronze doors. His grandest effort is, perhaps, the model for the colossal statue of the Genius of America, which is to be cast in bronze, and placed upon the pinnacle of the

Capitol dome. This statue represents a female figure, fully draped, and posed with marvellous grace and dignity. During his brief career, Crawford finished more than sixty works, many of them of the grand size; besides which, he left nearly as many sketches in plaster, and numerous designs, which his assistants are to complete. In 1844, he married Miss Louisa Ward, daughter of the late Samuel Ward, of New York. Soon after his return from his last visit to his native land, in 1856, he was afflicted with a cancerous tumor on the brain, from the effects of which he died, after many months of acute suffering, borne with heroic patience.

Henry Kirke Brown, another of the most eminent of our American sculptors, was born at Leyden, Massachusetts, in 1814. He began the study of portrait painting in Boston, when eighteen years of age; and afterward he became a railroad engineer in Illinois, much to the injury of his health, and at length repaired to Italy to pursue the grave art of the statuary. Among his more famous works, are the well-known marbles of Hope; the Pleiades; the Four Seasons; the bronze statue of De Witt Clinton at Greenwood Cemetery, and the noble equestrian statue of Washington, which stands in Union square in the city of New York. Most, if not all of these works, were executed in Brooklyn, New York; though, of late years, the artist has established himself in a pleasant cottage at Newburgh, on the Hudson. Brown's Washington was the first statue ever cast in bronze in this country.

Palmer, who is, perhaps, the most popular of American sculptors at the present day, was born in the interior of the state of New York. His noble character—no less personal than professional—is seen in all the interesting incidents of his career, from the humblest boyhood to his present high position, social and artistic. In his younger days he toiled hard at the carpenter's craft; afterward he rose to the dignity of a carver in wood, of models and moulds for stove and other iron castings; and at length he became a cutter of cameos. He was a married man, with a young family growing up around him, before he finally made that venture in marble which has brought such high honor to himself and his country. His works are marked with singular simplicity, truth, and naturalness of treatment, and with a finish and delicacy of execution rarely obtained in obdurate stone. Among his chief and best known productions, are the full-length, life-like figures of the Indian Girl, and the White Captive; the Moses, and many beautiful bas-reliefs and female heads, both portrait and ideal. An exhibition of his collected works was made a few years ago, with great advantage to his own fame and fortune, and to the public pleasure and profit.

Launt Thompson, a young pupil of the eminent sculptor above named, is pursuing his art in New York with a success which promises the most enviable results.

Clark Mills, a self-educated man, in the proper sense of the phrase, is known by his popular equestrian statues of Jackson and Washington, executed by the order of Congress, for the embellishment of the national Capitol.

Harriet Hosmer, of Watertown, Massachusetts, is achieving a fair fame in this difficult field of art as we now write. She is scarcely thirty years of age, yet is already intrusted with important public commissions. The approval which followed her first original work—a bust of Hesper—induced her father to send her to Rome, where she at present resides. She began her studies in the eternal city, as a pupil of Gibson, in 1852. Her first works abroad were the busts of Daphne and Medusa, and a statue of Œnone. Afterward came the well-known reclining figure of Beatrice Cenci; and, in 1855, the charming statue of Puck, and a pendant thereto, entitled Will-o'-the-Wisp. In 1859, she completed her statue of Zenobia in Chains, which is of colossal size, and is said to be, thus far, her best work.

Mosier, Rogers, Story, Akers, Bartholomew, Ball, Hart, Ball Hughes, and Stone, with many others whom it would be pleasant and profitable for us to name, did our opportunity allow, have each won most honorable distinction by their admirable creations in the sculptor's art. They are all well employed either with public or private orders. Such orders, from states and from individuals, are now, happily, no longer things of rare occurrence. They come numerously and generously from all quarters, and always, by preference, to our native artists; not at rare intervals, and then to foreign *ateliers*, as at the commencement of the period of which we are writing—a com-

The above engravings, representing the Seasons, are from the *Farmer's Almanac*, showing the Anderson style of engraving; the opposite page, engraved from sketches about Newport, R. I. by A. H. Jocelyn, illustrates the improvement in the art.

mencement lying back, by our rapid reckoning, eighty long years in the remote past.

The love of pictures, so general among our people of all grades, has been greatly fostered and cultivated, of late years, by the universal diffusion of engravings. Besides the best of this class of works, more accessible examples, in the form of book illustrations, and especially in illustrated magazines and newspapers, have been scattered, through a cheap press, broadcast over the land, and have penetrated its remotest corners, doing the labors of the missionary in the great cause of art. It is true that these heralds—the pictorial papers, at least—are not always the best possible teachers; yet have they cleared the way for greater things to follow, and it is gratifying to know that they are themselves every day reaching toward a higher standard. It would, indeed, be quite beyond the power of our mathematics, to cipher out the good effect upon the art progress of the nation, of even one of our best pictorial magazines, with the immense audience which they are wont to address; such a magazine, for example, as that of the Harpers—read, or at least seen, every month, by millions of people.

This grand aggregate of the good influence of the graver, is gained through the agency, not of the ambitious steel-plate, but the humble wood-cut. The art of working on wood—which has thus of late become the chief medium of the engraver, and has almost superseded all other mediums—has, though an old art, so greatly improved during the eighty years life of our republic, that it may fairly be said to have grown up with it, and in a great degree *from* it.

The general demand among us for cheap art, and the general ability to buy, at least, such cheap art, obviously required the wood-cut; and so the wood-cut—which had kept its humble place from a period even far beyond the invention of types—was brought from its obscurity, and made—in our own hands, as much as in those of any people—to fill its present exalted office.

The art was, really, almost reinvented in America, and soon after the great Revolution, when Dr. Anderson, in 1794, left his *materia medica*, and set up in New York as a wood-engraver. Anderson's first considerable performance was the repetition, in a work called the "Looking-Glass," of some cuts by Bewick. Some of these pictures he executed on type metal, and only a portion of them on the wood-block. For these he had to invent his own tools, and then manufacture them. He continued to improve, and all through his professional career he contributed greatly to develop the resources of the art, and to put it upon the track of its present mature power. In 1812, the art was introduced and successfully practised in Boston by Abel Brown, and in Philadelphia by William Mason.

About the year 1826, Mr. Adams entered the profession, and by his industry and skill gave it a great impetus toward the perfection to which it has since been brought. The innumerable illustrations which he produced in his superb pictorial edition of the Bible, published by the Harpers, called forth all the talent which the country possessed in this direction, and exercised it to yet greater excellence. This great work served, also, no doubt, to promote the popular appreciation of the art, now so universally manifested in the demand for illustrated books and pictorial papers of all kinds. From the time of Mr. Adams, the number of our engravers on wood has steadily and rapidly increased; and so, too, has the quality of their work, until the present day shows us pictures on wood which are, in many respects—as in delicacy of finish, softness of texture, and vigor of expression—quite equal, if not superior to the best examples of work on copper or steel. The greater cheapness of the wood-block; its capacity of use, in printing *with* the type (which metal plates do not possess); and the ease with which it may be duplicated by stereotyping or by electrotyping—have caused it to supersede copper and steel-plates in a great measure, except for very large and costly subjects, and for bank note engraving. The invention, in recent times, of Lowry's "ruling machine;" of improved methods of printing, as in the process called "overlaying," by means of which the nearer parts of the picture are made to receive a stronger pressure than the more distant portions; and various mechanical aids—have contributed to the present wonderful perfection of the art among us. The country now possesses a host of excellent wood engravers, who find full and remunerative employment.

For the finer class of wood-engravings, box-wood (imported chiefly from Germany) is used; while, for coarser and larger work, that of the pear-tree will answer, and some-

times even that of the apple-tree, beech, and even mahogany and pine. The wood is cut across the ends of the fibre, of the thickness of type; and after being smoothly planed, a thin covering of white is rubbed over the surface; after which the drawing to be engraved is made upon it with a lead pencil, or with India-ink, or both combined. The block is then cut away with the graver, in such manner as to leave the lines of the drawing all in *relief*, like type. On copper or steel, on the contrary, the drawing is *sunk* into the plate, and is necessarily printed with greater slowness and care, and at a greater cost. In engravings printed in colors, a separate block is made for each tint.

Copper-plate engraving is an art as old, almost, as xylography or wood-cutting. A picture upon this metal is preserved in Germany of as ancient a date as 1461. Instead of the simple wooden blocks of other days, our cotton manufacturers now print their calicoes from copper plates of cylindrical form, by which improvement the fabrics are made infinitely more beautiful and greatly cheaper. Most of the larger print-works employ skilful artists and engravers to produce their designs, paying them large salaries for their labors. In some establishments thousands of dollars are thus profitably expended each year. Copper-plate engraving, after reaching the highest degree of excellence, both at home and abroad, has, within the present century, given way in a great measure to the superior capacity of the steel plate, a capacity revealed to the world and developed in the highest degree by Jacob Perkins, of Newburyport, in Massachusetts. Mr. Perkins, who began his experiments about 1805, may, indeed, almost be said to have invented steel engraving, since the metal had been used only once before his time, in an English print in Smith's "Topographical Illustrations of Westminster." Mr. Perkins discovered the present invaluable processes by which the steel plate is so hardened after being engraved, that by the pressure upon it of other soft plates, the picture can be transferred in relief and again repeated so as to duplicate the work to any extent. The first impression in *relief*, from which duplicates of the original engraving are made, is taken upon a soft steel cylinder by repeated rollings over the hardened plate. By this process any bank note vignettes can be transferred, in *combination*, at will, from the separate original plates to the steel cylinder, and from that to other plates for the printer. The product is thus greatly cheapened, inasmuch as all the pictures, the central vignette, the end scene or portrait, and the bottom or tail piece, usually put upon a bank note, can be furnished for the cost of a special engraving of one of them. Mr. Perkins' system is employed throughout England and the continent of Europe, no less than all over the United States. By it the art of bank note engraving has been so perfected among us that only the highest skill and the costliest machinery can now produce successful counterfeits. Nothing remains but to insure the bank note against the wonderful power of the art of photography, and this security our engravers will no doubt soon effectually provide. In May, 1858, all the important bank note engravers of the United States formed themselves into one great association, known as "The American Bank Note Company," and this company furnishes nearly all the engraving and printing required on the western continent, and thus gives employment to the best talent of the land in this department of art. Among the most successful of American steel engravers of bank notes and other works, are Durand, Smillie, Cheney, Sartain, Danforth, Deck, Casilear, and Alfred Jones. All these eminent men have worked in the greatest perfection upon steel in the several styles of line, stipple, mezzotint, aquatint, etc. Engraving on copper or steel is practised in its most simple form, called line engraving, by covering the face of the polished metal with a thin surface of melted white wax; on this the sketch is transferred by laying, face down, a tracing of the design in black lead pencil upon the wax, and subjecting it to a heavy pressure; the lines are then seen distinctly upon the wax when the paper is removed. The workman then with a fine graver makes the line through upon the metal; after which the wax is melted off and the engraver proceeds to complete the work by cutting the lines to the proper depth and shade. The graver, when in use, is pressed forward, cutting a furrow and raising burrs on each side. The burr, pushed up by the graver in its progress, is removed by the scraper. Lines are softened by rubbing over with a smoothly pointed burnisher. In some instances the burrs made by the finest etching needles being allowed to remain, produce a pleasing effect, seen in some of Rembrandt's engravings. The parallel lines that are sometimes required in series are

cut by a ruling machine. The fainter shades, too delicate for the graver, are scratched in with a needle.

In the stippling or dotted style, the effect is produced by dots made in curved lines, with the graver. The more closely the dots are grouped together, the darker the shade, and the whole effect is more like painting than the line engraving. In the shadows of the limbs of the human figure it is much used, and sometimes in portraits the line and stipple are combined with good effect.

The style called etching is practised upon other metals, also upon glass. By this process the coating of wax is formed of white wax, Burgundy pitch, and asphaltum, and is applied in silk bags, through which the composition oozes. When the plate is covered it is held over a smoking lamp until the wax is covered with lamp-black. The lead pencil design is then laid upon this lamp-black and pressed. The lines are then drawn through the wax, and nitric acid with four parts water is poured upon the plate. This remains until the fainter portions of the sketch are corroded. The acid is then poured off and the plate washed with water. An application of lamp-black and turpentine, called stopping, is applied with a camel's hair brush to those portions sufficiently corroded; a reapplication of the acid eats deeper into those parts that require deeper lines. This process of stopping is repeated until the work is complete. Being then cleaned of the wax, those portions of the plate that require it are gone over with the graver, and not unfrequently the shades are stippled.

Aquatinta is a French invention of 1662, and takes its name from the resemblance it has to water colors on India-ink drawings. After the design is etched in outline and the wax removed, a solution of Burgundy pitch in alcohol is poured over the plate as it lies in an inclined position. The alcohol evaporating, the pitch remains. The design is then drawn with a gummy syrup called the bursting-ground, which is applied only wherever a shade is wanted. The whole is then covered with a turpentine varnish; water being left on it for fifteen minutes, the bursting-ground cracks open and exposes the copper. The etching process is then pursued. Sometimes colors are applied and printed from the plate; but when there are different tints, it is customary to use a distinct plate for each one.

The mezzotinto, or half-painted style, was introduced into England by Prince Rupert. The invention has been ascribed to Sir Christopher Wren. The plate is roughed up by running over its surface little toothed wheels of different degrees of fineness, called cradles, which by a rocking motion are caused to raise little burrs, pointing in different directions. The whole plate being thus made rough, the burrs are rubbed off with scrapers, wherever light shades are required, and the shades are deepened by increasing the burrs. The effect is fine where dark grounds are desired. This method combined with etching, produces an improved style. Some mezzotints are now prepared for the trade by a machine. The prints wear much better on steel than on copper.

Admirable examples of these branches of the art may be seen in the superb landscape works of Smillie, especially those from the four pictures of Cole's Voyage of Life, in Durand's works after Vanderlyn's, in our many beautiful illustrated books, in the publications of the late American Art Union, and, as already intimated, in the dainty vignettes which embellish our myriad bank notes.

In the art of die sinking,—a process conducted in a similar manner to that already described of the transfer in relief of the impression from a hardened plate or plug of steel to a soft plate, and from that again, when hardened, to yet another—many admirable works have been produced. Excellent examples may be seen in the medals of Allston, Stuart, and other subjects executed for the American Art Union by the late C. C. Wright.

By the assistance of the electrotype process, the work of the engraver is now repeated, in as many copies as may be desired, each of the copper transcripts thus produced being an absolute duplicate of the original plate or block. It is these electrotyped copies which are now used by the printer, the same picture sometimes on several presses at once, while the original wood block is preserved untouched, except to form the mould for other copies in metal when they may be required. The effect of this power of perfect and inexpensive repetition of engraved blocks has been to reduce the cost of pictorial illustrations to a point within the compass of the most unpretending purse, and thus to send good examples of the engraver's art to the remotest and humblest corners of the land.

What may be the consequences of the many processes, now more or less perfected,

for the mechanical production of engraving by the aid of photography, it is hardly possible to imagine: not other than advantageous, however, even to the engravers themselves, since their field of labor will be higher, if not broader, when their pictures shall be, as they promise to be, not only drawn for them on their plates and blocks by photography, but even etched and engraved besides!

In the art of lithography, or drawing upon stone, a steady advance may be witnessed; though our works of this class cannot yet claim comparison with those of the continent of Europe.

The introduction of the daguerreotype, the perfection to which the art has been brought in the skilful hands of American operators, and the immense extent to which it is used among us (apart from its share in the work of other arts), have had, no doubt, a most wonderful influence upon our art progress. Furnishing pictures which are, through their cheapness, accessible to all classes, it has worked, like the engraving, as an elementary instructor, while its truthfulness has been a constant lesson to the artist himself. Better pictures have, unquestionably, been painted through the hints of the daguerreotype and photograph; and many people who, but for them, would never have dreamed of pictures, have become intelligent lovers and liberal patrons of the arts.

We must not, in ever so cursory a glance at the history of the arts, forget the service of our academies and schools of painting, little as some affect to think of art academies—so far, at least, as their *honorary* character is concerned.

The first attempt to found an institution of this nature in the United States, was made in Philadelphia, in 1791, by Charles Wilson Peale, the father of the painter Rembrandt Peale. The elder Peale was a very energetic laborer in the cause of art, all through his long life. This first attempt of his to found an academy, was seconded by the Italian sculptor Ceracchi, who was in the country at the time. The attempt failed, however, from some cause or other, and a second and rather more fortunate venture was made in 1794, when the Columbianum was established. This society lived a year, held one exhibition, and was forgotten.

In 1802, some art-loving citizens of New York, headed by Edward Livingston, founded the New York, afterward the American Academy of Fine Arts. There were so few artists in this society, and the governing influence was so little of a professional character, that it was an academy of art only in name, and quite failed in its office of an academy. The necessary result was an inefficient life, until it was, in due time, superseded by a better organized establishment. This result followed in 1826, in the institution of the present National Academy of Design.

The National Academy, thus founded by Morse, and his brother artists of the period, has steadily advanced to this day in position and usefulness, and now numbers among its academicians and associates nearly all the leading painters of the land. Its annual exhibitions have been prepared, without interruption, from 1826 until now, with a catalogue of works extended gradually from less than two hundred, to over eight hundred, and with an aggregate of receipts from less than nothing up to six or seven thousand dollars annually. The academy has always supported free (evening) schools for the study of the antique statuary, and the living model-schools, to which any student has access, when coming with the required preparatory knowledge of the use of the crayon. Membership in the academy, except in the grade of "student," is awarded only to professional artists, and then by ballot, as a mark of honorary distinction. The progress of art in America during the last thirty or forty years cannot be better seen than in the continued growth of the National Academy, and in its present large and varied exhibitions as compared with those of days gone by.

The Pennsylvania Academy of Fine Arts in Philadelphia is doing a good work, though it is not so fully an association of artists only as is the National Academy at New York. Conducted in part by laymen, it labors under some of the disadvantages of the old superseded American Academy. It was founded as early as 1807, and is now a flourishing and most useful institution, keeping a valuable permanent gallery always open to the public view, and providing besides an annual display of the current productions of our artists. It possesses also a fine collection of casts from the antique, gratuitously accessible to all students.

The art gallery of the Athenæum in Boston, serves, in a measure, the purposes of an academy in that city. Of late years Academies of Art have sprung up in some form, and with more or less success, in many other

of our chief cities, as in Baltimore, Charleston, St. Louis, Cincinnati, and elsewhere, giving us a fair promise of picture galleries and facilities for art study, as general and as liberal as our wants demand.

Besides these institutions for the use of the profession itself, there is happily a rapid extension throughout the Union of drawing schools for all classes of the population. Professorships of drawing are being introduced into our universities and colleges, and a higher standard is being everywhere set up in our seminaries of all grades. Schools of Design for women are springing up in our larger cities, and such an institution has been recently incorporated with the Cooper Union of New York, under the highest promise of successful result. When the principles of art become universally known to us, as we have good cause to believe they soon will be, we shall realize the fact not only in the increased excellence and fame of our pictures and our sculptures, but in the higher beauty, utility, and value of our manufactures and fabrics of all kinds, from the rarest luxury to the simplest article of necessary use. In another and less material sense we shall feel it and enjoy it, in breathing the air of a more refined and more beautiful social and national life.

EDUCATION AND EDUCATIONAL INSTITUTIONS.

CHAPTER I.

EDUCATIONAL DEVELOPMENT IN THE COLONIAL PERIOD.

INTRODUCTION.

THE origin, nomenclature, and early peculiarities of the systems, institutions, and methods of instruction adopted in the original colonies, which now constitute a portion of the United States of America, will be found in the educational institutions and practices of the countries from which these colonies were settled—modified by the education, character, motives of emigration, and necessities of the settlers themselves.

The earliest effort to establish an educational institution in the English dominions in America, was made under the auspices of King James I, and by contributions of members of the Church of England from 1618 to 1623. In a letter addressed to the Archbishops, he authorizes them to invite the members of the Church throughout the kingdom to assist "those undertakers of that Plantation n [iVirginia], with the erecting of some churches and schools for the education of the children of those barbarians" [the Aborigines] and of the colonists. Under these instructions, a sum of £1500 was collected for the erection of a building for a college at Henrico—a town whose foundations, or site even, cannot now be certainly determined, but which according to the best authorities was situated near Varina on Cox's Island, about fifty miles above Jamestown. Authority was given by the Company to the Governor to set apart 10,000 acres of land for the support of the college, and one hundred colonists were sent from England to occupy and cultivate the same, who were to receive a moiety of the produce as the profit of their labor, and to pay the other moiety toward the maintenance of the college. In 1620, George Thorpe was sent out as superintendent, and 300 acres of land was set apart for his sustenance. Other donations and legacies were made for the endowment of this institution of learning.

In 1619, the Governor for the time being was instructed by the company to see "that each town, borough, and hundred procured by just means a certain number of their children to be brought up in the first elements of literature; that the most towardly of them should be fitted for college, in the building which they purposed to proceed as soon as any profit arose from the estate appropriated to that use; and they earnestly required their help in that pious and important work." In 1621, Rev. Mr. Copeland, chaplain of the Royal James, on her arrival from the East Indies, prevailed on the ship's company to subscribe £100 toward a "free schoole" in the colony of Virginia, and collected other donations in money and books for the same purpose. The school was located in Charles City, as being most central for the colony, and was called the "*East India School.*" The company allotted one thousand acres of land, with five servants and an overseer, for the maintenance of the master and usher. The inhabitants made a contribution of £1500 to build a house, for which workmen were sent out in 1622.

The "college" and "free school" thus projected and partially endowed were in the style of the "college" and "free school" and the "free grammar school" of England, and were intended to be of the same character as the college afterward established at Cambridge, and the institution for which "the richer inhabitants" of Boston in 1636 subscribed toward "the maintenance of a free schoolmaster," and the same as, according to Governor Winthrop, in his journal, was erected in Roxbury in 1645, and other towns, and for which every inhabitant bound some house or land for a yearly allowance forever, and many benevolently disposed persons left legacies in their last wills, and the towns made "an allowance out of the common stock," or set apart a portion of land

"to be improved forever, for the maintenance of a free schoole forever."

The same leading idea can be traced in the educational policy of the Dutch West India Company—which bound itself, in receiving its charter of colonization, "to maintain good and fit preachers, schoolmasters, and comforters of the sick." The company recognized the authority of the established Church of Holland, and the establishment of schools and the appointment of schoolmasters rested conjointly with the company and the classis (ecclesiastical authorities) of Amsterdam. When the company granted a special "Charter of Freedom and Exemptions" to the "Patroons," for the purpose of agricultural colonization, they were not only to satisfy the Indians for the lands upon which they should settle, but were to make prompt provision for the support of a minister and schoolmaster, that thus the service of God and zeal for religion might not grow cold, and be neglected among them. In 1633, in the enumeration of the company's officials at Manhattan, Adam Roelandsen is mentioned as the schoolmaster, and that school, it is claimed, is still in existence in connection with the Reformed Dutch Church of New York. In the projected settlement at New Amstel on the Delaware, the first settlers were encouraged to proceed by certain conditions, one of which was that the city of Amsterdam should send thither "a proper person for a schoolmaster;" and we find among the colonists who embarked, "Evert Pietersen, who had been approved, after examination before the classis, as schoolmaster." In these early efforts to establish schools, we trace the educational policy of the Reformed Church of Holland as indicated by the synod of Wesel in 1568, and matured at the synod of Dort in 1618, by which the training of Christian youth was to be provided for—"I. *In the house, by parents.* II. *In the schools, by schoolmasters.* III. *In the churches, by ministers, elders, and the catechists especially appointed for this purpose.*" Owing in part to the commercial purposes entertained by the companies having charge of the colonization of New York, Virginia, and some other portions of the country, and to the educational and religious institutions of the colonists being not so much a matter of domestic as of foreign policy, these institutions never commanded the regular and constant attention of the local authorities, or of the settlers themselves.

The outline and most of the essential features of the system of common schools now in operation in the New England states, and the states which have since avowedly adopted the same policy, will be found in the practice of the first settlers of the several towns which composed the original colonies of Massachusetts, Connecticut, and New Haven. The first law on the subject did but little more than declare the motive, and make more widely obligatory the practice which already existed in the several neighborhoods and towns, which had grown up out of the education of these colonists at home, and the circumstances in which they were placed. They did not come here as isolated individuals, drawn together from widely separated homes, entertaining broad differences of opinion on all matters of civil and religious concernment, and kept together by the necessity of self-defence in the eager prosecution of some temporary but profitable adventure. They came after God had set them in families, and they brought with them the best pledges of good behavior, in the relations which father and mother, husband and wife, parents and children, neighbors and friends, establish. They came with a foregone conclusion of permanence, and with all the elements of the social state combined in vigorous activity—every man expecting to find or make occupation in the way in which he had been already trained. They came with earnest religious convictions, made more earnest by the trials of persecution; and the enjoyment of these convictions was a leading motive in their emigration hither. The fundamental articles of their religious creed, that the Bible was the only authoritative expression of the divine will, and that every man was able to judge for himself in its interpretation, made schools necessary, to bring all persons "to a knowledge of the Scriptures," and an understanding "of the main grounds and principles of the Christian religion necessary to salvation." The constitution of civil government adopted by them from the outset, which declared all civil officers elective, and gave to every inhabitant who would take the oath of allegiance the right to vote and to be voted for, and which practically converted political society into a partnership, in which each member had the right to bind the whole firm, made universal education

identical with self-preservation. But aside from these considerations, the natural and acknowledged leaders in this enterprise—the men who, by their religious character, wealth, social position, and previous experience in conducting large business operations, commanded public confidence in church and commonwealth, were educated men—as highly and thoroughly educated as they could be at the best endowed free and grammar schools in England at that period; and not a few of them had enjoyed the advantages of her great universities. These men would naturally seek for their own children the best opportunities of education which could be provided; and it is the crowning glory of these men, that, instead of sending their own children back to England to be educated in grammar schools and colleges, these institutions were established here amid the stumps of the primeval forests; that, instead of setting up "family schools" and "select schools" for the ministers' sons and magistrates' sons, the ministers and magistrates were found, not only in town meeting, pleading for an allowance out of the common treasury for the support of a public or common school, and in some instances for a "free school," but among the families, entreating parents of all classes to send their children to the same school with their own. All this was done in advance of any legislation on the subject, as will be seen from the following facts gleaned from the early records of several of the towns first planted.

TOWN ACTION IN BEHALF OF SCHOOLS.

The earliest records of most of the towns of New England are either obliterated or lost, but among the oldest entries which can now be recovered, the school is mentioned not as a new thing, but as one of the established interests of society, to be looked after and provided for as much as roads and bridges and protection from the Indians. In the first book of records of the town of Boston, under date of April 13, 1634, after providing by ordinance for the keeping of the cattle by "brother Cheesbrough," "it was then generally agreed upon that our brother Philemon Purmont shall be entreated to become schoolmaster for the teaching and nurturing of children with us." This was doubtless an elementary school, for in 1636 we find a subscription entered on the records of the town "by the richer inhabitants," "for the maintenance of a free schoolmaster, for the youth with us—Mr. Daniel Maude being now also chosen thereunto." Mr. Maude was a clergyman, a title at that day and in that community which was evidence of his being an educated man. This "free school" was, in the opinion of the writer, not necessarily a school of gratuitous instruction for all, but an endowed school of a higher grade, of the class of the English grammar school, in which many of the first settlers of New England had received their own education at home. Toward the maintenance of this school, the town, in 1642, in advance of any legislation by the General Court, ordered "Deer Island to be improved," and several persons made bequests in their last wills. Similar provision can be cited from the early records of Salem, Cambridge, Dorchester, and other towns of Massachusetts Bay.

The early records of the town of Hartford are obliterated, but within seven years after the first log-house was erected, thirty pounds are appropriated to the schools, and in April, 1643, it is ordered "that Mr. Andrews shall teach the children in the school one year," and "he shall have for his pains £16, and therefore the townsmen shall go and inquire who will engage themselves to send their children; and all that do so, shall pay for one quarter, at the least, and for more if they do send them, after the proportion of twenty shillings the year; and if they go any week more than one quarter, they shall pay sixpence a week; and if any would send their children and are not able to pay for their teaching, they shall give notice of it to the townsmen, and they shall pay it at the town's charge." Mention is also made of one "Goody Betts," who kept a "Dame School" after the fashion of Shenstone's "schoolmistress" at Leasower, in England. Similar entries are found in the town records of Windsor and Wethersfield in advance of any school code by the colony of Connecticut.

The records of the town of New Haven are full of evidence of the interest taken by the leading spirits of the colony, particularly by Governor Theophilus Eaton and Rev. John Davenport, in behalf of schools of every grade, and of the education of every class, from the apprentice boy to those who filled the high places in church and state. The first settlement of the colony was in 1638, and within a year a transaction is recorded, which, while it proves the existence of a school at that

early period, also proclaims the protection which the first settlers extended to the indigent, and their desire to make elementary education universal. In 1639, Thomas Fugill is required by the court to keep Charles Higinson, an indentured apprentice, "at school one year;" or else to advantage him as much in his education as a year's learning comes to. In 1641, the town orders "that a Free School be set up," and "our pastor, Mr. Davenport, together with the magistrates, shall consider what yearly allowance is meet to be given to it out of the common stock of the town, and also what rules and orders are meet to be observed in and about the same." To this school "that famous schoolmaster," Ezekiel Cheever,* "was appointed," "for the better training up of youth in this town, that, through God's blessing, they may be fitted for public service hereafter, in church or commonwealth." Not content with a Grammar School, provision was early made for "the relief of poor scholars at the college at Cambridge," and in 1645 forty bushels of wheat were sent forward for this purpose, and this was followed by other donations, and by a richer consignment of young men to enjoy the advantages of the institution. In 1647, in the distribution of home lots, it was ordered in town meeting, that the magistrates "consider and reserve what lot they shall see meet, and most commodious for a college, which they desire may be set up so soon as their ability will reach thereunto." Among the active promoters of education and schools, the name of Governor Eaton, in connection with Mr. Davenport, is particularly prominent. In 1652, he calls a meeting of the magistrates and elders "to let them know what he has done for a schoolmaster;" that he had written a letter to one Mr. Bower, a schoolmaster of Plymouth, and another to Rev. Mr. Landron, a scholar; and many of the town thought there would be need of two schoolmasters—"one to teach boys to read and write," as well as the "Latin schoolmaster." At another time he reports his correspondence with a teacher in Wethersfield, then with one at old Plymouth, and again with one at Norwalk, "so that the town might never be without a sufficient schoolmaster." He seems to have been considerate of the health of the teachers, and proposes to excuse one "whose health would not allow him to go on with the work of teaching," which he seems to regard as more laborious than that of the ministry. On another occasion he introduces to the committee a schoolmaster who has come to treat about the school. He is allowed £20 a year, and 30 shillings for his expenses in travel, besides his board and lodgings. He wished to have liberty to visit his friends, "which he proposed to be in harvest time, and that his pay be such as wherewith he may buy books." These particulars show the considerate interest taken by men in local authority in the school and the teacher, in advance of any directory or compulsory legislation of the colony of New Haven. It was owing, in part, to the timely suggestions of Rev. Mr. Davenport, that Gov. Edward Hopkins, of Connecticut, by his will, dated London, March 7, 1657, bequeathed the residue of his estate (after disposing of much of his estate in New England) to trustees residing in New Haven and Hartford, "in full assurance of their trust and faithfulness" in disposing of it, "to give some encouragement in those foreign plantations for the breeding up of hopeful youths both at the grammar school and college, for the public service of the country in future times." By the final disposition and distribution of this estate three grammar schools were established at New Haven, Hartford, and Hadley, which are in existence at this day, among the oldest institutions of this class in America.

The early records of the several towns which subsequently constituted a portion of the colony of New Hampshire, exhibit evidence of a different character and spirit in the first settlers. The plantations on the Piscataqua river were made by proprietors from mere commercial motives, and the settlers were selected in reference to immediate success in that direction; and in these settlements we find no trace of any individual or town action in behalf of education until after their union with the colony of Massachusetts, whose laws made the establishment of schools obligatory.

In the early records of the Rhode Island and Providence Plantations, we find traces of the same educational policy which marked the early history of towns in Massachusetts and Connecticut. According to Callender, in Newport, "so early as 1640, Mr. Lenthal was by vote called to keep a public school for the learning of youth, and for

*See Barnard's *American Teachers and Educators*, vol. i., art. "Ezekiel Cheever."

his encouragement there were granted to him and his heirs, one hundred acres of land, and four more for a house lot. It was also voted that one hundred acres should be appropriated for a school for encouragement of the poorer sort to train up their youth in learning. And Mr. Robert Lenthal, while he continues to keep school, is to have the benefit thereof." The proprietors of other plantations reserved a portion of land for the maintenance of schools, and generally of a "free schoole;" and "Mr. Schoolmaster Turpin," petitions the town of Providence, that he and his heirs, so long as any of them should maintain the worthy art of learning, may be invested in the lands set apart for a school.

These citations show the action of the towns independent of any general legislation by the several colonies of New England—action prompted by their own consciousness of the advantages of education in "Dame Schools," in "Free Schools," in "Grammar Schools" and in "Colleges" at home—aided by the presence among them of "masters" and "ushers," and also of "schoolmasters" and "schoolma'ams" willing to engage in the same vocations in the new townships and villages—stimulated by magistrates and ministers, who had themselves received the best education that such schools could give in England, who inculcated the reading of the Scriptures as of daily obligation, and who believed that the foundations of the state should be laid in the virtue and intelligence of the whole people.

COLONIAL LEGISLATION AND ACTION.

We shall now notice briefly the legislation respecting children and schools of each of the colonies, in the order of their settlement.

VIRGINIA.—Although several attempts were made to establish "Free Schools" and a "College" in Virginia, by the Virginia Company and benevolent individuals, at an earlier day, the first general legislation respecting the education of children by the Colonial Assembly was in 1631, when it was enacted: "It is also thought fit, that upon every Sunday the mynister* shall, halfe an hour or more before evening prayer, examine, catechise, and instruct the youths and ignorant persons of his parish in the ten commandments, the articles of the beliefe, and in the Lord's prayer; and shall diligentlie heere, instruct, and teach the catechisme, sett forth in the book of Common Prayer. And all fathers, mothers, maysters, and mistrisses, shall cause their children, servants, or apprentices, which have not learned their catechisme, to come to church at the time appoynted, obedientlie to heare, and to be ordered by the mynister untill they have learned the same. And yf any of sayd fathers, mothers, maysters & mistresses, children, servants, or apprentices, shall neglect their duties, as the one sorte in not causinge them to come, and the other in refusinge to learne as aforesayd, they shall be censured by the corts in these places holden." To secure the execution of this last clause, it is provided in the oath of the warden, taken before "the justices for the monthlie corts"—"they shall present such mastyrs and mistresses as shall be delinquent in the catechisinge the youth and ignorant persons. So help you God."

In 1660 an attempt was made to found a college for the supply of educated clergymen. "Whereas the want of able and faithful ministers in this country deprives us of those great blessings and mercies that always attend upon the service of God; which want, by reason of the great distance from our native country, cannot in all probability be always supplied from thence: *Be it enacted*, that for the advance of learning, education of youth, supply of the ministry, and promotion of piety, there be land taken for a college and free school with as much speed as may be convenient, houses erected thereon for entertainment of students and scholars." In the same year it was ordered that a petition be drawn up by the General Assembly to the king for a college and free school; and that there be, his letters patent, "to collect the charity of well disposed persons in England, for the erecting of colledges & schools in this countrye," and also to bestow universities "to furnish the church here with ministers for the present." And this petition was recommended to the right honorable Governor, Sir William Berkeley. Sir William does not appear, in his reply to the Lords Commissioners of Foreign Plantations, dated 1670, to have been very kindly disposed to public schools of high or low degree.

"Question 23. What course is taken about the instructing the people within your government in the Christian religion;

* In this and some other quotations we have followed the orthography of the original.

and what provision is there made for the payment of your ministry?"

"*Answer.* The same course that is taken in England out of towns; every man according to his ability instructing his children. We have forty-eight parishes, and our ministers are well paid, and by my consent should be better if they would pray oftener and preach less. But of all other commodities, so of this, the worst are sent us, and we had few that we could boast of, since the persecution in Cromwell's tyranny drove divers worthy men hither. But I thank God there are no free schools, nor printing, and I hope we shall not have these hundred years; for learning has brought disobedience and heresy and sects into the world, and printing has divulged them, and libels against the best government. God keep us from both!"

In 1691, "the good design of building a free school and college for the encouragement of learning," was recognized, but it was not till 1693 that an act was passed locating the college, for which a royal charter had been obtained April 8, 1692, with the title of William and Mary, at Middle Plantation, afterward Williamsburgh. Toward its endowment the royal founders granted £2000 in money, land, and a revenue duty on tobacco; and the Assembly enacted an export duty on skins and furs. The money grant of £2000 did not meet with much encouragement from the English Attorney General (Seymour) who was instructed to prepare the charter, who remarked to the Rev. James Blair, the agent of the colony for this purpose, that the money was wanted for other purposes, and that he did not see the slightest occasion for a college in Virginia. The agent represented that the intention of the colony was to educate and qualify young men to be ministers of the Gospel, and begged Mr. Attorney would consider that the people of Virginia had souls to be saved as well as the people of England. "Souls!" said he; "damn your souls! make tobacco." The plan of the building was designed by Sir Christopher Wren. The first commencement was held in 1700, at which, according to Oldmixon, "there was a great concourse of people; several planters came thither in their coaches, and several sloops from New York, Pennsylvania and Maryland; it being a new thing in America to hear graduates perform their academical exercises. The Indians themselves had the curiosity to come to Williamsburgh on this occasion; and the whole country rejoiced as if they had some relish of learning." After the English fashion, the college had a representative in the General Assembly. As a quitrent for the land granted by the Crown, the students and professors every year marched to the residence of the royal Governor, and presented, and sometimes recited, some Latin verses. On the breaking out of the Revolution the endowments of the college were cut off, and its constitution was somewhat changed.

No general school law was established in Virginia until 1796, although a plan was proposed by Mr. Jefferson in 1779, which recognized three degrees of public instruction, viz.: 1. Elementary schools for all children. 2. Colleges for an extension of instruction suitable for the common purposes of life. 3. A university, an extension of the means of higher culture on the basis of the college at Williamsburgh.

Scattered through the colony were schools in connection with churches, both Episcopal and Presbyterian, and in many families private teachers were employed, and in some cases sons were sent out to England to complete their education.

MASSACHUSETTS.—In 1636, six years after the first settlement of Boston, the General Court of the colony of Massachusetts Bay, which met in Boston on the 8th of September, passed an act appropriating £400 toward the establishment of a college. The sum thus appropriated was more than the whole tax levied on the colony at that time in a single year, and the population scattered through ten or twelve villages did not exceed five thousand persons; but among them were eminent graduates of the university of Cambridge, in England, and all were here for purposes of permanent settlement. In 1638, John Harvard left by will the sum of £779 in money, and a library of over three hundred books. In 1640 the General Court granted to the college the income of the Charlestown ferry; and in 1642 the Governor, with the magistrates and teachers and elders, were empowered to establish statutes and constitutions for the infant institution, and in 1650 granted a charter which still remains the fundamental law of the oldest literary institution in this country.

In 1642 the attention of the General Court was turned to the subject of family instruction in the following enactment:—

"Forasmuch as the good education of children is of singular behoof and benefit to any commonwealth; and whereas many parents and masters are too indulgent and negligent of their duty in this kind:

"*It is therefore ordered by this Court and the authority thereof*, That the selectmen of every town, in the several precincts and quarters where they dwell, shall have a vigilant eye over their brethren and neighbors, to see, first, that none of them shall suffer so much barbarism in any of their families, as not to endeavor to teach, by themselves or others, their children and apprentices so much learning as may enable them perfectly to read the English tongue, and knowledge of the capital laws, upon penalty of twenty shillings for each neglect therein; also, that all masters of families do, once a week, at least, catechise their children and servants in the grounds and principles of religion, and if any be unable to do so much, that then, at the least, they procure such children or apprentices to learn some short orthodox catechism, without book, that they may be able to answer to the questions that shall be propounded to them out of such catechisms by their parents or masters, or any of the selectmen, where they shall call them to a trial of what they have learned in this kind; and further, that all parents and masters do breed and bring up their children and apprentices in some honest lawful calling, labor or employment, either in husbandry or some other trade profitable for themselves and the commonwealth, if they will not nor cannot train them up in learning to fit them for higher employments; and if any of the selectmen, after admonition by them given to such masters of families, shall find them still negligent of their duty in the particulars aforementioned, whereby children and servants become rude, stubborn and unruly, the said selectmen, with the help of two magistrates, shall take such children or apprentices from them, and place them with some masters for years, boys till they come to twenty-one, and girls eighteen years of age complete, which will more strictly look unto and force them to submit unto government, according to the rules of this order, if by fair means and former instructions they will not be drawn unto it."

In the same year the following general school law was enacted:—"It being one chief project of that old deluder, Satan, to keep men from the knowledge of the Scriptures, as in former times, keeping them in an unknown tongue, so in these latter times, by persuading from the use of tongues, so that at least the true sense and meaning of the original might be clouded and corrupted with false glosses of deceivers; and to the end that learning may not be buried in the grave of our forefathers, in church and commonwealth, the Lord assisting our endeavors:

"*It is therefore ordered by this Court and authority thereof*, That every township within this jurisdiction, after the Lord hath increased them to the number of fifty householders, shall then forthwith appoint one within their town to teach all such children, as shall resort to him, to write and read, whose wages shall be paid, either by the parents or masters of such children, or by the inhabitants in general, by way of supply, as the major part of those who order the prudentials of the town shall appoint; provided, that those who send their children be not oppressed by paying much more than they can have them taught for in other towns.

"*And it is further ordered*, That where any town shall increase to the number of one hundred families or householders, they shall set up a grammar school, the masters thereof being able to instruct youths so far as they may be fitted for the university, and if any other town neglect the performance hereof above one year, then every such town shall pay five pounds per annum to the next such school, till they shall perform this order."

With various modifications as to details, but with the same objects steadily in view, viz., the exclusion of "barbarism" from every family, by preventing its having even one untaught and idle child or apprentice, the maintenance of an elementary school in every neighborhood where there were children enough to constitute a school, and of a Latin school in every large town, and of a college for higher culture for the whole colony, the colonial legislature, and the people in the several towns of Massachusetts, maintained an educational system, which, although not as early or as thorough as the school code of Saxony and Wirtemberg, has expanded with the growth of the community in population, wealth, and industrial development, and stimulated and shaped the legislation and efforts of other states in behalf of universal education.

The early records of the colony of Plymouth contain no trace of the zeal for

schools which characterized the colonies of Massachusetts Bay, Connecticut, and New Haven. In 1662 the profits of the codfishery were appropriated to the maintenance of grammar schools in such towns as would make arrangements for the same; and in 1669 towns having fifty families were authorized to raise by rate on all the inhabitants the sum of twelve pounds for this class of schools, "for as much as the maintenance of good literature doth much tend to the advancement of the weal and flourishing state of societies and republics." After the union of the two colonies under one charter, several towns in the old colony were fined for not complying with the provisions of the law of 1647 respecting children and schools.

In addition to the grammar school which each town having one hundred families was obliged by law to maintain, to enable young men to fit for college, in several counties endowed schools were set up; and in 1763 the first of that class of institutions, known and incorporated as academies, was established in the parish of Byfield in the town of Newbury, on a legacy left by Gov. William Dummer. Its objects were the same as those of the town grammar school, but its benefits were not confined to one town, nor was it supported in any degree by taxation.

Rhode Island.—In this colony education was left to individual and parental care, no trace of any legislation on the subject being found in the proceedings of the General Assembly, except to incorporate in 1747 the "Society for the Promotion of Knowledge and Virtue," which was established in Newport in 1730 by the name of the "Company of the Redlend Library;" and in 1764 to grant the charter to the College of Rhode Island, which was first located in Warren, and in 1770 removed to Providence, and in 1804 called, after its most liberal benefactor, Brown University.

Connecticut.—In 1646, Mr. Roger Ludlow was requested to compile "a body of laws for the government of this commonwealth," which was not completed till May, 1650, and is known as the code of 1650. The provisions for the family instruction of children and the maintenance of schools are identically the same as in Massachusetts, and remained on the statute-book, with but slight modifications to give them more efficiency, for one hundred and fifty years. In the chapter on "capital" offences, it is enacted that if any child above sixteen years of age, and of sufficient understanding, shall curse or smite his father or mother, he shall be put to death, "unless it can be sufficiently testified that the parents have been unchristianly negligent in the education of such children." In the chapter respecting schools, the proposition made by the "Commissioners of the United Colonies," that it be commended to every family which "is able and willing to give yearly but the fourth part of a bushel of corn, or something equivalent thereto," "for the advancement of learning," was approved, and two men were appointed in every town to receive and forward the contributions. This was done in the larger towns of the colonies of Connecticut and New Haven, from time to time, until ten of the principal ministers, in 1700, at Branford, brought each a number of books, and as they laid them on the table, declared—"*I give these books for founding a College in Connecticut*;" and on that foundation rose Yale College. To fit young men for the college at Cambridge, and subsequently for Yale, in 1672 it was ordered by the General Court, "that in every county there shall be set up a grammar school for the use of the county, the master thereof being able to instruct youths so far as they may be fitted for college;" and to aid the county towns in maintaining their schools, six hundred acres of land were appropriated by the General Court to each, "to be improved in the best manner that may be for the benefit of a grammar school in said towns, and to no other use or end whatsoever;" and in 1677 a fine of ten pounds annually is imposed on any county town neglecting to keep the Latin school. In 1690, the county Latin schools of Hartford and New Haven are denominated "Free Schools," probably in reference to the partial endowment of schools of this class by the trustees of the legacy of Governor Hopkins.

As early as 1700, the system of public instruction in Connecticut embraced the following particulars:

1. An obligation on every parent and guardian of children, "not to suffer so much barbarism in any of their families as to have a single child or apprentice unable to read the holy word of God, and the good laws of the colony;" and also, "to bring them up to some lawful calling or employment," under a penalty for each offence.

2. A tax of forty shillings on every thousand pounds of the lists of estates, was collected in every town with the annual state tax, and payable proportionably to those towns only which should keep their schools according to law.

3. A common school in every town having over seventy families, kept for at least six months in the year.

4. A grammar school in each of the four head county towns to fit youth for college, two of which grammar schools were free or endowed.

5. A collegiate school, toward which the General Court made an annual appropriation of £120.

6. Provision for the religious instruction of the Indians.

The system, therefore, embraced every family and town, all classes of children and youth, and all the then recognized grades of schools. There were no select or sectarian schools to classify society at the roots, but all children were regarded with equal favor, and all brought under the assimilating influence of early associations and similar school privileges. Here was the foundation laid, not only for universal education, but for a practical, political, and social equality, which has never been surpassed in the history of any other community.

New Hampshire.—From 1623 to 1641, the early records of the first settlements within the present limits of New Hampshire exhibit no trace of educational enactments; from 1641 to 1680, the school laws of Massachusetts prevailed, and the presence of such men as Philemon Purmont and Daniel Maude, who were the first schoolmasters of that colony, must have contributed to inaugurate the policy of local and endowed schools. When the necessities of the college at Cambridge were made known, the people of Portsmouth, in town meeting, made a collection of sixty pounds, with a pledge to continue the same amount for seven years, "for the perpetuating of knowledge both religious and civil among us and our posterity after us." In the original grants for towns one lot was reserved for the support of schools.

In 1680 New Hampshire became a separate colony, and in 1693 the Colonial Assembly enacted "that for the building and repairing of meeting houses, ministers' houses, and allowing a salary to a schoolmaster in each town within this province, the selectmen shall raise by an equal rate an assessment upon the inhabitants;" and in 1719 it was ordained that every town having fifty householders should be constantly provided with a schoolmaster to teach children to read and write; and those having one hundred should maintain a grammar school, to be kept by some decent person, of good conversation, well instructed in the tongues. In 1721 it was ordered that not only each town but each parish of one hundred families should be constantly provided with a grammar school, or forfeit the sum of twenty pounds to the treasury of the province. This system of elementary and secondary instruction continued substantially until the adoption of the state constitution in 1792.

In 1770 Dr. Wheelock removed a school which he had established in Lebanon, Connecticut, under the name of "Moor's Indian Charity School," to the depths of the forests in the western part of New Hampshire. Here, side by side with the school for Indians, he organized another institution, termed a college in the charter granted by Governor Wentworth in 1769, and which held its first commencement in 1771, with four graduates, one of whom was John Wheelock, the second president of the institution, which was called Dartmouth College after Lord Dartmouth, one of the largest benefactors of the Charity School.

At the close of the colonial period of our history, according to Noah Webster, the condition of the educational system in Connecticut and New England was as follows:

"The law of Connecticut ordains that every town or parish containing seventy householders, shall keep an English school, at least eleven months in the year; and towns containing a less number, at least six months in the year. Every town keeping a public school is entitled to draw from the treasury of the state a certain sum of money, proportioned to its census in the list of property which furnishes the rule of taxation. This sum might have been originally sufficient to support one school in each town or parish, but in modern times is divided among a number, and the deficiency of money to support the schools is raised upon the estates of the people, in the manner the public taxes are assessed. To extend the benefits of this establishment to all the inhabitants, large towns and parishes are di-

vided into districts, each of which is supposed able to furnish a competent number of scholars for one school. In each district a house is erected for the purpose by the inhabitants of that district, who hire a master, furnish wood, and tax themselves to pay all expenses not provided for by the public money. The school is kept during the winter months, when every farmer can spare his sons. In this manner, every child in the state has access to a school. In the summer, a woman is hired to teach small children, who are not fit for any kind of labor. In the large towns, schools, either public or private, are kept the whole year; and in every county town, a grammar school is established by law.

"The beneficial effects of these institutions will be experienced for ages. Next to the establishments in favor of religion, they have been the nurseries of well-informed citizens, brave soldiers and wise legislators. A people thus informed are capable of understanding their rights and of discovering the means to secure them. In the next place, our forefathers took measures to preserve the reputation of schools and the morals of youth, by making the teaching them an honorable employment. Every town or district has a committee, whose duty is to procure a master of talents and character; and the practice is to procure a man of the best character in the town or neighborhood. The wealthy towns apply to young men of liberal education, who, after taking the bachelor's degree, usually keep school a year or two before they enter upon a profession. One of the most unfortunate circumstances to education in the Middle and Southern states, is an opinion that school-keeping is a mean employment, fit only for persons of low character. The wretches who keep the schools in those states very frequently degrade the employment; but the misfortune is, public opinion supposes the employment degrades the man: of course no gentleman will undertake to teach children while in popular estimation he must forfeit his rank and character by the employment. Until public opinion is corrected by some great examples, the common schools, what few there are in those states, must continue in the hands of such vagabonds as wander about the country."

"Nearly connected with the establishment of schools is the circulation of newspapers in New England. This is both a consequence and a cause of a general diffusion of letters. In Connecticut, almost every man reads a paper every week. In the year 1785, I took some pains to ascertain the number of papers printed weekly in Connecticut and in the Southern states. I found the number in Connecticut to be nearly eight thousand; which was equal to that published in the whole territory south of Pennsylvania. By means of this general circulation of public papers, the people are informed of all political affairs; and their representatives are often prepared to deliberate on propositions made to the legislature.

"Another institution favorable to knowledge is the establishment of parish libraries. These are procured by subscription, but they are numerous, the expense not being considerable, and the desire of reading universal. One hundred volumes of books, selected from the best writers, on ethics, divinity, and history, and read by the principal inhabitants of a town or village, will have an amazing influence in spreading knowledge, correcting the morals, and softening the manners of a nation. I am acquainted with parishes where almost every householder has read the works of Addison, Sherlock, Atterbury, Watts, Young, and other similar writings; and will converse well on the subjects of which they treat."

New York.—In the early history of the settlements of the New Netherlands, the school was regarded as an appendage of the church, and the schoolmaster was paid in part out of the funds of the government. Down to its organization as a royal province of England, a parochial school existed in every parish. In 1658 a petition of the burgomasters and schepens of New Amsterdam was forwarded to the West India Company, in which "it is represented that the youth of this place and the neighborhood are increasing in number gradually, and that most of them can read and write, but that some of the citizens and inhabitants would like to send their children to a school the principal of which understands Latin, but are not able to do so without sending them to New England; furthermore, they have not the means to hire a Latin schoolmaster, expressly for themselves, from New England, and therefore they ask that the West India Company will send out a fit person as Latin schoolmaster, not doubting that the number of persons who will send

their children to such teacher will from year to year increase, until an academy shall be formed whereby this place to great splendor will have attained, for which, next to God, the honorable company which shall have sent such teacher here shall have laud and praise." In compliance with this petition, Dr. Alexander Carolus Curtius, a Latin master of Lithuania, was sent out by the company. The burgomasters proposed to give him five hundred guilders annually out of the city treasury, with the use of a house and garden, and the privilege of collecting a tuition of six guilders per quarter of each scholar. Dr. Curtius proved not to be a good disciplinarian, and parents complained to the authorities that "his pupils beat each other, and tore the clothes from each other's backs." The doctor retorted that he could not interfere, "as his hands were tied, as some of the parents forbade him punishing their children." He accordingly gave up his place and returned to Holland, and was succeeded in the mastership by Rev. Ægidius Luyck in 1662. His school had a high reputation, and was resorted to by pupils from Virginia, Fort Orange, and the Delaware.

After the establishment of the English authority, the governor claimed the privilege of licensing teachers even for the church schools, but no general school policy was established. In 1702 a free grammar school was founded and built on the King's Farm, and in 1732 a "Free School," for teaching the Latin and Greek and practical branches of mathematics, was incorporated by law. The preamble of the act of incorporation opens as follows: "Whereas the youth of this colony are found by manifold experience to be not inferior in their natural genius to the youth of any other country in the world, therefore be it enacted," etc. In 1710, the Society for the Propagation of the Gospel in Foreign Parts established a charity school in connection with the Episcopal church, which is still in existence, and is now known as the Trinity School. In 1750, Charles Dutens announced to the public "that he taught a school for the use of young ladies and gentlemen, whose love of learning might incline them to take lessons from him in French, at his house on Broad street, near the Long Bridge, where he also makes and vends finger and ear rings, solitaires, stay-hooks and lockets, and sets diamonds, rubies, and other stones. Science and virtue are two sisters, which the most part of the New York ladies possess," etc.

Judge Smith, in his "History of the Province of New York," when speaking of the action of the legislature for founding a college in 1746, says: "To the disgrace of our first planters, who beyond comparison surpassed their eastern neighbors in opulence, Mr. Delancy, a graduate of the University of Cambridge (England), and Mr. Smith, were for many years the only academics in this province, except such as were in holy orders; and so late as the period we are now examining (1750), the author did not recollect above thirteen men, the youngest of whom had his bachelor's degree at the age of seventeen, but two months before the passing of the above law, the first toward erecting a college in this colony, though at a distance of above one hundred and twenty years after its discovery and settlement of the capital by Dutch progenitors from Amsterdam."

In 1754 a royal charter was obtained for a college in New York, with the style of King's College, which came into possession of a fund raised by a lottery authorized for this purpose by the Assembly in 1746, and of a grant of land conveyed to its governors by Trinity Church in 1755. Out of this grant, Columbia College is now (1860) realizing an income of $60,000 a year. The first commencement was celebrated in 1758.

"For the advantage of our new intended college" (King's), "and the use and ornament of the city," a number of eminent citizens of New York, in 1754, united in an association to form a library, which in 1772 was incorporated with the title of the "New York Society Library."

MARYLAND.—The first settlement was effected within the present limits of Maryland in 1634; and in the years immediately following, we find no record of any marked individual or legislative effort to establish institutions of learning. The first act of the colonial Assembly is entitled a "Supplicatory Act to their sacred majesties for erecting of schools," which was passed in 1694, and repealed or superseded by an act entitled a "Petitionary Act" for the same purpose. Appealing to the royal liberality, which had been extended to the neighboring colony of Virginia in the institution of the college, "a place of universal study," the Assembly ask, "that for the propagation of the Gospel, and the education of the youth of this province

in good letters and manners, that a certain place or places for a free school or schools, or place of study of Latin, Greek, writing and the like, consisting of one master, one usher, and one writing-master or scribe to a school, and 100 scholars," be established in Arundel County, of which the Archbishop of Canterbury should be chancellor, and to be called "King William's School;" and a similar free school is asked for in each county, to be established from time to time as the resources of the several counties may suffice. To increase the educational resources of the counties, in 1717 it was enacted that an additional duty of twenty shillings current money per poll should be levied on all Irish servants, being papists, to prevent the growth of popery by the importation of too great a number of them into this province, and also an additional duty of twenty shillings current money per poll on all negroes, for raising a fund for the use of public schools. In 1723, "an act for the encouragement of learning, and erecting schools in the several counties," was passed, with a preamble setting forth that preceding Assemblies have had it much at heart, "to provide for the liberal and pious education of the youth of the province, and improving their natural abilities and acuteness (which seem not to be inferior to any), so as to be fitted for the discharge of their duties in the several stations and employments in it, either in regard to church or state." By this act seven visitors are appointed in each county, with corporate powers to receive and hold estate to the value of £100 per annum; and they are authorized with all convenient speed to purchase, out of funds realized from revenues already set apart for this purpose, one hundred acres more or less, one moiety of which is to serve for making corn, grain, and pasturage for the benefit and use of the master, who is prohibited growing tobacco, or permitting it by others on said farm. The visitors are directed to employ good schoolmasters, members of the Church of England, and of pious and exemplary lives and conversation, and capable of teaching well the grammar, good writing, and the mathematics, if such can be conveniently got, on a salary of £20 per annum, and the use of the plantation. In 1728 the master of each public school is directed "to teach as many poor children gratis as the majority of the visitors should order."

Up to the establishment of the state government in 1777, there was no system of common schools for elementary instruction in operation in Maryland. "A free school," like the free endowed grammar school of England, was established in a majority of counties, two of which were subsequently converted into colleges, that of Charlestown in Kent county, into Washington College in 1782, and the second at Annapolis into St. John's College in 1784—the former "in honorable and perpetual memory of his excellency General Washington, the illustrious and virtuous commander-in-chief of the armies of the United States."

In 1696, Rev. Thomas Bray, then residing in the parish of Sheldon, England, was made commissary of Maryland, to establish the Church of England in the colony. His first act was to inaugurate a plan of parochial libraries for the use of ministers in each parish. Through his influence, Princess Anne made a benefaction for this purpose, and in acknowledgment of the honor of having the capital of the province called after her name (Annapolis), donated books to the value of four hundred pounds to the parish library, which he called "the Annapolitan Library." By his influence in England a plan of "lending-libraries" was projected in every deanery throughout the kingdom, and carried out.

New Jersey.—In the history of New Jersey as a colony we find no trace of any general legislation or governmental action in behalf of schools. Scattered at wide intervals over the state were schools kept by clergymen in connection with their churches.

In 1748 a charter of incorporation for the College of New Jersey was obtained from George II., during the administration of Governor Belcher, "for the instruction of youth in the learned languages and liberal arts and sciences." During the administration of Governor Franklin in 1770, a second college was chartered, with the name of Queen's College, as a school of theology for the Reformed Dutch Church. Neither of these institutions received any aid from the government.

Pennsylvania.—The frame of government of the province of Pennsylvania, dated April 25th, 1682, drawn up by William Penn before leaving England, contains the following provision: "The governor and

provincial council shall erect and order all public schools and reward the authors of useful sciences and laudable inventions in said province." In the laws agreed upon a few months later in the same year by the governor and divers freemen of the province in England, it is provided "that all children within this province of the age of twelve years shall be taught some useful trade, or skill, to the end that none be idle, but that the poor may work to live, and the rich, if they become poor, may not want." In 1683 the governor and council in Philadelphia, "having taken into their serious consideration the great necessity there is of a schoolmaster in the town of Philadelphia, sent for Enoch Flower, an inhabitant of said town, who for twenty years past hath been exercised in that care and employment in England, to whom having communicated their minds, he embraced it upon the following terms: to learn to read English, 4s. by the quarter;" to learn to read and write, 6s.; read, write and cast accounts, 8s.; for boarding a scholar, £10 per year. In 1689 the Society of Friends established a Latin school of which George Keith was the first teacher. In 1725 Rev. Francis Alison, a native of Ireland, but educated at Glasgow, became pastor of the Presbyterian church in New London, in Chester county, and opened a school there, which had great reputation. He at one time resided at Thunder Hill, in Maryland, where he educated many young men who were afterward distinguished in the Revolutionary struggle. He was subsequently Provost of the college at Philadelphia.

In 1749 Benjamin Franklin published his "*Proposals relating to the Education of Youth in Pennsylvania*," out of which originated subsequently an academy and charity school, and ultimately the University of Pennsylvania. At the head of the English department of the academy in 1751 was Mr. Dove, who was then engaged in giving public lectures in experimental philosophy with apparatus—an early lyceum or popular lecturer.

In 1743 the American Philosophical Society originated in a "Proposal for Promoting Useful Knowledge," published by Benjamin Franklin, which, after various forms of organization, took its present name and shape on the 2d of January, 1769.

In 1765 the Medical School originated with the appointment of Dr. Morgan to the professorship of the theory and practice of physic; in 1767 it was fully organized, and in 1768 degrees in medicine were for the first time conferred.

Among the denominational schools which grew up in the absence of any general legislation on the subject, was a Moravian school for boys at Nazareth in 1747, and for girls at Bethlehem 1749, both of which are still in existence, and the latter, especially, since 1789, has been one of the most flourishing female seminaries in this country.

DELAWARE.—In the early settlements of the Swedes and Dutch in Delaware, the policy of connecting a school with the church was probably imperfectly carried out, but there is no historical trace of its existence. The only school legislation of the colony extant, is an act incorporating "the Trustees of the Grammar School in the borough of Wilmington, and county of New Castle," dated April 10, 1773.

NORTH CAROLINA.—In North Carolina for fifty years, the policy of the provincial authorities was to discourage all forms of religious and educational activity outside of the Church of England, to the extent of forbidding expressly the establishment of printing presses. The first act on record relating to schools, in 1764, was "for the building of a house for a school, and the residence of a schoolmaster in the town of Newbern"—appropriating the half of two lots, before set apart for a church, for this purpose. In 1766 another act was passed incorporating trustees for this school, with the preamble "that a number of well-disposed persons, taking into consideration the great necessity of having a proper school, or public seminary of learning established, whereby the present generation may be brought up and instructed in the principles of the Christian religion, and fitted for the several offices and purposes of life, have at great expense erected a school-house for this purpose;" and providing that the master of the school shall be "of the established Church of England, and licensed by the governor." Similar acts were passed in 1770 and 1779 for schools at Edenton and Hillsborough. In 1770 an act, reciting that a very promising experiment had been made in the town of Charlotte in the county of Mecklenburg, with a seminary of learning "a number of youths then taught making great advancement in the knowledge of the

learned languages, and in the rudiments of the arts and sciences, having gone to various colleges in distant parts of America," incorporates the same with the name of Queen's College. This act was repealed by proclamation in the next year, but in 1777 it was reincorporated by name of "Liberty Hall." With the downfall of the royal authority, and the religious party which had swayed the colony, a new educational policy was inaugurated.

SOUTH CAROLINA.—In the early history of the colony of South Carolina, as of several other colonies, the first efforts to establish schools were in connection with the predominant church of the settlers, *i. e.*, of the Church of England, through the aid of the "Venerable Society for Propagating the Gospel in Foreign Parts." By the missionaries of that society charity schools were established in several parishes, some of which were afterward endowed by individuals, and incorporated by act of the legislature, and called "Free Schools." In 1710 a free school of this character was established at Goosecreek, and in 1712 in Charleston; and by the general act of February 22, 1722, the justices of the county courts were authorized to erect a free school in each county and precinct, to be supported by assessment on land and negroes. These schools were bound to teach ten poor children each, if sent by said justices. In 1724, a memorial to the "Venerable Society" from the parish of Dorchester sets forth—"The chief source of irreligion here is the want of schools; and we may justly be apprehensive, that if our children continue longer to be deprived of opportunities of being instructed, Christianity will of course decay insensibly, and we shall have a generation of our own as ignorant as the native Indians." The society sent out schoolmasters to this and other parishes, and about 2000 volumes of bound books. In 1721 Mr. Richard Beresford bequeathed to the parish of St. Thomas and St. Dennis, in trust, for the purpose of educating the poor, £6500; and in 1732 Mr. Richard Harris, for the same object, £1000. In 1728 Rev. Richard Ludlam bequeathed his whole estate to the parish of St. James, which in 1778 amounted to £15,272. Other bequests for the same objects were made at different times before the Revolution. In 1743 Rev. Alexander Garden wrote to the society that the negro school consisted of thirty children, and in 1750 that it was going on with all desirable success. In 1748 a library was founded in Charleston by an association of seventeen young men, whose first object was to collect new pamphlets and magazines published in Great Britain, but in the course of a year embraced the purchase of books. After many delays and refusals, an act of incorporation was obtained in 1754. There is but one older library in this country.

GEORGIA.—The earliest effort to establish schools in Georgia was made by the Rev. George Whitefield. Before leaving England in 1737, he had projected an Orphan House, after the plan of that of Dr. Franké, at Halle, of which an account about that time appeared in English. His first visit to Savannah in 1738 satisfied him of the necessity of a charity school for poor and neglected children, and in the course of that year he returned to England to obtain his ordination as priest and collect funds for his educational enterprise. The trustees of the colony gave him five hundred acres of land upon which to erect his buildings. These were selected about ten miles out of Savannah, and on the 25th of March, 1740, he laid the first brick of the house, which he called Bethesda, or House of Mercy, and opened his school in temporary shelters with forty children. In the fall of the same year he made a collection and preaching tour in New England, during which he collected over £800 for his charity. After disasters by fire, etc., the Orphan House property was bequeathed to Selina, Countess of Huntingdon, in trust for the purposes originally designed, and subsequently incorporated for this purpose. On her death, and after the Revolution, the legislature transferred the property to thirteen trustees, to manage the estate and make regulations for an academy in the county of Chatham. Schools were established by the missionaries sent out by the Society for the Propagation of the Gospel at Savannah, Augusta, and Frederica, and by the Moravians and Huguenots in their respective settlements.

RESULTS AT THE CLOSE OF OUR COLONIAL HISTORY.

The educational systems and provisions of the colonial period of the United States were, especially in its earlier portion, closely connected with the ecclesiastical systems of

the colonies. Schools were maintained by individual youth trained up in very many cases, because it was a duty to prepare useful future members of the church, which in some of the colonies was also the state.

In three states, Massachusetts, Connecticut, and New Hampshire, it was very early made the legal duty of parents and towns to make provision for the education of youth. Elsewhere, such efforts as were made, aside from the natural desire of parents to afford their children such an education as was suitable to their rank in life, or such as would aid their subsequent progress and prosperity, were, generally speaking, put forth by clergymen, ecclesiastical bodies, or pious laymen, for colonial institutions for secondary education were not very numerous, including the town grammar schools of New England, and a small number of endowed or free schools. In these two classes of institutions, a small number of pupils were prepared to enter college. A far greater number of college students, more especially in the middle and southern states, were prepared by clergymen, who received each a small number of pupils into his family, as a means of securing some additional income. There were also a few private schools of considerable reputation and value.

In connection with these educational agencies, the small parochial and social libraries, and the two or three associations for the increase and dissemination of science, should also be referred to.

The institutions of superior education, established during the colonial period, were seven in number; namely, Harvard, William and Mary, Yale, Nassau Hall, Rutgers, Brown, and Columbia. From these came forth nearly all the liberally educated men of that day, though it was a custom of a few of the wealthiest families of the day to graduate their sons at a European university, Oxford or Cambridge being commonly selected. The colonial colleges, like the schools preparatory to them, were substantially church institutions, their pupils being the stock from which the clerical body was reinforced.

It was not until the very close of the colonial period that a few special or professional schools were established. A school of medicine, sufficiently entitled to the name, gave degrees in New York in 1769; a sort of theological seminary was founded in Pennsylvania in 1778; while the first law school only arose the year after the peace of 1783. Professorships, however, in these departments, had afforded a certain amount of instruction in all of them as part of the college course, long before; indeed, from the foundation of the earliest colleges.

Female education was comparatively neglected in the colonial period. Girls were taught housewifely duties far more assiduously than learning, and often depended upon home instruction for whatever education they received; neither the common schools nor those for secondary education affording or being designed to afford accommodation for them.

That special supplementary training which at the present day does so much to alleviate the misfortunes of the blind, the deaf and dumb, and the feeble minded, was quite unknown, nor was the idea entertained that such a training was practicable.

CHAPTER II.

REVOLUTIONARY AND TRANSITIONAL PERIOD.

The immediate effects of the war of the Revolution were adverse, and, in certain aspects, disastrous to the interests of education. Dangers so great and imminent almost engrossed all thought and absorbed all exertion and resources. Children, indeed, were not left without the instruction of the family and the local elementary school, and they were, thank God, everywhere surrounded with the most stirring exhibitions of heroic patriotism and the self-sacrificing virtues. But too generally the elementary school and the teacher, never properly appreciated, gave way to more pressing and universally-felt necessities. Higher education for a time experienced a severe shock. The calls of patriotism withdrew many young men from the colleges and the preparatory schools, and prevented many more from resorting thither. The impoverishment of the country, and the demand for immediate action, compelled others to relinquish an extended course of professional study. In some cases the presence of armies caused a suspension of college instruction and the dispersion of faculty and students, and even converted the college buildings into barracks. But the action and influence of this period were not wholly adverse or disastrous to schools and higher education. The

public mind was stimulated into greatly increased activity—now, for the first time, assuming a collective existence and national characteristics. The heart of the people was thoroughly penetrated by the spirit of self-sacrifice, in cheerfully bearing the burdens of society with diminished resources, and in repairing the waste and destruction of the war. The examples of wisdom and eloquence in council, and courage and heroism in the field, and of patient endurance of privation and hardship, and towering above all and outshining all, the colossal greatness and transparent purity of the character of Washington—these were lessons for the head and the heart of a young nation, which amply compensated for the partial and temporary suspension of schools. In the discussion and reconstruction of political society, in framing constitutions and organic legislation, and in the disposition of unsettled territory, the importance of the elementary school, the academy, and the college, was recognized and provided for.

Among the earliest to do justice to this great subject was Noah Webster, who, in a series of essays, first published in a New York paper, and copied extensively by the press in other parts of the country, and afterward embodied in a volume with other fugitive pieces, advocated a liberal policy by the national and local governments in favor of a broad system of education. "Here every class of people should know and love the laws. This knowledge should be diffused by means of schools and newspapers; and an attachment to the laws may be formed by early impression upon the mind. Two regulations are essential to the continuance of republican governments: 1. Such a distribution of lands and such principles of descent and alienation as shall give every citizen a power of acquiring what his industry merits. 2. Such a system of education as shall give every citizen an opportunity of acquiring knowledge, and fitting himself for places of trust." "Education should be the first care of a legislature; not merely the institution of schools, but the furnishing them with the best men for teachers. A good system of schools should be the first article in a code of political regulations; for it is much easier to introduce and establish an effectual system for preserving morals, than to correct by penal statutes the ill effects of a bad system. I am so fully persuaded of this, that I should almost adore that great man who shall change our practice and opinions, and make it respectable for the first and best men to superintend the education of youth." As specimens of the utterances of eminent publicmen on this subject, we cite the following:

"Promote, as an object of primary importance, institutions for the general diffusion of knowledge. In proportion as the structure of a government gives force to public opinion, it is essential that public opinion should be enlightened." GEORGE WASHINGTON.

"The wisdom and generosity of the legislature in making liberal appropriations in money for the benefit of schools, academies and colleges, is an equal honor to them and their constituents, a proof of their veneration for letters and science, and a portent of great and lasting good to North and South America, and to the world. Great is truth—great is liberty—great is humanity—and they must and will prevail." JOHN ADAMS.

"I look to the diffusion of light and education as the resources most to be relied on for ameliorating the condition, promoting the virtue, and advancing the happiness of man. And I do hope, in the present spirit of extending to the great mass of mankind the blessings of instruction, I see a prospect of great advancement in the happiness of the human race, and this may proceed to an indefinite, although not an infinite, degree. A system of general instruction, which shall reach every description of our citizens, from the richest to the poorest, as it was the earliest, so shall it be the latest of all the public concerns in which I shall permit myself to take an interest. Give it to us, in any shape, and receive for the inestimable boon the thanks of the young, and the blessings of the old, who are past all other services but prayers for the prosperity of their country, and blessings to those who promote it."
THOMAS JEFFERSON.

"Learned institutions ought to be the favorite objects with every free people; they throw that light over the public mind which is the best security against crafty and dangerous encroachments on the public liberty. They multiply the educated individuals, from among whom the people may elect a due portion of their public agents of every description, more especially of those who are to frame the laws: by the perspicuity, the

consistency, and the stability, as well as by the justice and equal spirit of which, the great social purposes are to be answered."

JAMES MADISON.

"Moral, political and intellectual improvement, are duties assigned by the Author of our existence to social, no less than to individual man. For the fulfilment of these duties, governments are invested with power, and to the attainment of these ends, the exercise of this power is a duty sacred and indispensable." JOHN QUINCY ADAMS.

"For the purpose of promoting the happiness of the State, it is absolutely necessary that our government, which unites into one all the minds of the State, should possess in an eminent degree not only the understanding, the passions, and the will, but above all, the moral faculty and the conscience of an individual. Nothing can be politically right that is morally wrong; and no necessity can ever sanctify a law that is contrary to equity. Virtue is the soul of a Republic. To promote this, laws for the suppression of vice and immorality will be as ineffectual as the increase and enlargement of jails. There is but one method of preventing crime and of rendering a republican form of government durable; and that is, by disseminating the seeds of virtue and knowledge through every part of the State, by means of proper modes and places of education; and this can be done effectually only by the interference and aid of the legislature. I am so deeply impressed with this opinion, that were this the last evening of my life, I would not only say to the asylum of my ancestors and my beloved native country, with the patriot of Venice, '*Esto perpetua*,' but I would add, as the best proof of my affection for her, my parting advice to the guardians of her liberties, establish and support PUBLIC SCHOOLS in every part of the State." BENJAMIN RUSH.

"There is one object which I earnestly recommend to your notice and patronage—I mean our institutions for the education of youth. The importance of common schools is best estimated by the good effects of them where they most abound and are best regulated. Our ancestors have transmitted to us many excellent institutions, matured by the wisdom and experience of ages. Let them descend to posterity, accompanied with others, which, by promoting useful knowledge, and multiplying the blessings of social order, diffusing the influence of moral obligations, may be reputable to us, and beneficial to them." JOHN JAY.

"The first duty of government, and the surest evidence of good government, is the encouragement of education. A general diffusion of knowledge is the precursor and protector of republican institutions, and in it we must confide as the conservative power that will watch over our liberties and guard them against fraud, intrigue, corruption and violence. I consider the system of our Common Schools as the palladium of our freedom, for no reasonable apprehension can be entertained of its subversion, as long as the great body of the people are enlightened by education. To increase the funds, to extend the benefits, and to remedy the defects of this excellent system, is worthy of your most deliberate attention. I can not recommend in terms too strong and impressive, as munificent appropriations as the faculties of the State will authorize for all establishments connected with the interests of education, the exaltation of literature and science, and the improvement of the human mind."

DE WITT CLINTON.

"The parent who sends his son into the world uneducated, defrauds the community of a lawful citizen, and bequeaths to it a nuisance." CHANCELLOR KENT.

In the discussions which have taken place in the press and in the halls of legislation on the subject, the experience of the New England States is constantly cited as an irrefutable argument in favor of public schools and universal education. The character and value of this example are admirably set forth by Daniel Webster:

"In this particular, New England may be allowed to claim, I think, a merit of a peculiar character. She early adopted and has constantly maintained the principle, that it is the undoubted right, and the bounden duty of government, to provide for the instruction of all youth. That which is elsewhere left to chance, or to charity, we secure by law. For the purpose of public instruction, we hold every man, subject to taxation in proportion to his property, and we look not to the question, whether he himself have, or have not, children to be benefited by the education for which he pays. We regard it

as a wise and liberal system of police, by which property, and life, and the peace of society are secured. We seek to prevent in some measure the extension of the penal code, by inspiring a salutary and conservative principle of virtue and of knowledge in an early age. We hope to excite a feeling of respectability, and a sense of character, by enlarging the capacity, and increasing the sphere of intellectual enjoyment. By general instruction, we seek, as far as possible, to purify the whole moral atmosphere; to keep good sentiments uppermost, and to turn the strong current of feeling and opinion, as well as the censures of the law, and the denunciations of religion, against immorality and crime. We hope for a security, beyond the law, and above the law, in the prevalence of enlightened and well-principled moral sentiment. We hope to continue and prolong the time when, in the villages and farm-houses of New England, there may be undisturbed sleep within unbarred doors. And knowing that our government rests directly on the public will, that we may preserve it, we endeavor to give a safe and proper direction to that public will. We do not, indeed, expect all men to be philosophers or statesmen; but we confidently trust, and our expectation of the duration of our system of government rests on that trust, that by the diffusion of general knowledge and good and virtuous sentiments, the political fabric may be secure, as well against open violence and overthrow, as against the slow but sure undermining of licentiousness."

The action of Congress, and of the early constitutional conventions of the several states, shows how nobly the public mind responded to these appeals.

On the 17th of May, 1784, Mr. Jefferson, as chairman of a committee for that purpose, introduced into the old Congress an ordinance respecting the disposition of the public lands; but this contained no reference to schools or education. On the 4th of March, 1785, another ordinance was introduced—by whom does not appear on the journal—and on the 16th of the same month was recommitted to a committee consisting of Pierce Long of New Hampshire, Rufus King of Massachusetts, David Howell of Rhode Island, Wm. S. Johnson of Connecticut, R. R. Livingston of New York, Charles Stewart of New Jersey, Joseph Gardner of Pennsylvania, John Henry of Maryland, William Grayson of Virginia, Hugh Williamson of North Carolina, John Bull of South Carolina, and William Houston of Georgia. On the 14th of April following, this committee reported the ordinance—by whom drawn up no clue is given—which, after being perfected, was passed the 20th of May following, and became the foundation of the existing land system of the United States.

By one of its provisions, the sixteenth section of every township was reserved "*for the maintenance of public schools;*" or, in other words, one section out of the thirty-six composing each township. The same provision was incorporated in the large land sale, in 1786, to the Ohio Company, and the following year in Judge Symmes' purchase. The celebrated ordinance of 1787, for the government of the territory north-west of the River Ohio, and which confirmed the provisions of the land ordinance of 1785, provides further, that, "RELIGION, MORALITY and KNOWLEDGE being necessary to good government and the happiness of mankind, SCHOOLS, AND THE MEANS OF EDUCATION, SHALL BE FOREVER ENCOURAGED." From that day to the present, this noble policy has been confirmed and extended, till its blessings now reach even the distant shores of the Pacific, and FIFTY MILLIONS OF ACRES of the public domain have been set apart and consecrated to the high and ennobling purposes of education, together with five per cent. of the net proceeds of the sales of all public lands in each of the states and territories in which they are situated.

During this period individual beneficence and associated enterprise began to be directed to the building up, furnishing, and maintaining libraries, colleges, academies, and scientific institutions. Societies for the promotion of science and literature, and schools for professional training, were founded and incorporated, and men of even moderate fortune began to feel the luxury of doing good, and to see that a wise endowment for the relief of suffering, the diffusion of knowledge, the discovery of the laws of nature, the application of the principles of science to the useful arts, the conservation of good morals, and the spread of religious truth, is, in the best sense of the term, a good investment—an investment productive of the greatest amount of the highest good both to the donor and his posterity, and which makes the residue of the property from which it is taken both more secure and more valuable.

CHAPTER III.

PROGRESS OF COMMON OR ELEMENTARY SCHOOLS.

To understand the real progress which has been made in the organization, administration, and instruction of institutions of learning in this country, and at the same time to appreciate the importance of many agencies and means of popular education besides schools, books and teachers, we must, as far as we can, look into the schools themselves, as they were fifty and sixty years ago, and realize the circumstances under which some of the noblest characters of our history have been developed. As a contribution to our knowledge of the early history of education in the United States, we bring together the testimony of several eminent men who were pupils or teachers in these schools, and who assisted in various ways in achieving their improvement.

LETTER FROM NOAH WEBSTER, LL.D.

"NEW HAVEN, March 10th, 1840.

"MR. BARNARD: *Dear Sir*—You desire me to give you some information as to the mode of instruction in common schools when I was young, or before the Revolution. I believe you to be better acquainted with the methods of managing common schools, at the present time, than I am; and I am not able to institute a very exact comparison between the old modes and the present. From what I know of the present schools in the country, I believe the principal difference between the schools of former times and at present consists in the books and instruments used in the modern schools.

"When I was young, the books used were chiefly or wholly Dilworth's Spelling Books, the Psalter, Testament and Bible. No geography was studied before the publication of Dr. Morse's small books on that subject, about the year 1786 or 1787. No history was read, as far as my knowledge extends, for there was no abridged history of the United States. Except the books above mentioned, no book for reading was used before the publication of the Third Part of my Institute, in 1785. In some of the early editions of that book, I introduced short notices of the geography and history of the United States, and these led to more enlarged descriptions of the country. In 1788, at the request of Dr. Morse, I wrote an account of the transactions in the United States, after the Revolution; which account fills nearly twenty pages in the first volume of his octavo editions.

"Before the Revolution, and for some years after, no slates were used in common schools; all writing and the operations in arithmetic were on paper. The teacher wrote the copies and gave the sums in arithmetic; few or none of the pupils having any books as a guide. Such was the condition of the schools in which I received my early education.

"The introduction of my Spelling Book, first published in 1783, produced a great change in the department of spelling; and from the information I can gain, spelling was taught with more care and accuracy for twenty years or more after that period, than it has been since the introduction of multiplied books and studies.*

"No English grammar was generally taught in common schools when I was young, except that in Dilworth, and that to no good purpose. In short, the instruction in schools was very imperfect, in every branch; and if I am not misinformed, it is so to this day, in many branches. Indeed there is danger of running from one extreme to another, and instead of having too few books in our schools, we shall have too many.

"I am, sir, with much respect, your friend and obedient servant, N. WEBSTER."

Dr. Webster, in an essay published in a New York paper in 1788, "On the Education of Youth in America," and in another essay published in Hartford, Ct., in 1790, "On Property, Government, Education, Religion, Agriculture, etc., in the United States,"† while setting forth some of the cardinal doctrines of American education as now held, throws light on the condition of schools and colleges in different parts of the country at that date.

"The first error that I would mention is a

* "The general use of my Spelling Book in the United States has had a most extensive effect in correcting the pronunciation of words, and giving uniformity to the language. Of this change, the present generation can have a very imperfect idea."

† These essays were afterwards collected with others in a volume entitled "A Collection of Essays and Fugitive Writings, etc." By Noah Webster, Jr. Boston: 1790.

too general attention to the dead languages, with a neglect of our own. . . . . This neglect is so general that there is scarcely an institution to be found in the country where the English tongue is taught regularly from its elements to its pure and regular construction in prose and verse. Perhaps in most schools boys are taught the definition of the parts of speech, and a few hard names which they do not understand, and which the teacher seldom attempts to explain; this is called learning grammar. . . . . The principles of any science afford pleasure to the student who comprehends them. In order to render the study of language agreeable, the distinctions between words should be illustrated by the difference in visible objects. Examples should be presented to the senses which are the inlets of all our knowledge.

"Another error which is frequent in America, is that a master undertakes to teach many different branches in the same school. In new settlements, where the people are poor, and live in scattered situations, the practice is often unavoidable. But in populous towns it must be considered as a defective plan of education. For suppose the teacher to be equally master of all the branches which he attempts to teach, which seldom happens, yet his attention must be distracted with a multiplicity of objects, and consequently painful to himself, and not useful to his pupils. Add to this the continual interruptions which the students of one branch suffer from those of another, which must retard the progress of the whole school. It is a much more eligible plan to appropriate an apartment to each branch of education, with a teacher who makes that branch his sole employment. . . . Indeed what is now called a liberal education disqualifies a man for business. Habits are formed in youth and by practice; and as business is in some measure mechanical, every person should be exercised in his employment in an early period of life, that his habits may be formed by the time his apprenticeship expires. An education in a university interferes with the forming of these habits, and perhaps forms opposite habits; the mind may contract a fondness for ease, for pleasure, or for books, which no efforts can overcome. An academic education, which should furnish the youth with some ideas of men and things, and leave time for an apprenticeship before the age of twenty-one years, would be the most eligible for young men who are designed for active employments.

* * * * * *

"But the principal defect in our plan of education in America is the want of good teachers in the academies and common schools. By good teachers I mean men of unblemished reputation, and possessed of abilities competent to their station. That a man should be master of what he undertakes to teach is a point that will not be disputed; and yet it is certain that abilities are often dispensed with, either through inattention or fear of expense. To those who employ ignorant men to instruct their children, let me say, it is better for youth to have no education than to have a bad one; for it is more difficult to eradicate habits than to impress new ideas. The tender shrub is easily bent to any figure; but the tree which has acquired its full growth resists all impressions. Yet abilities are not the sole requisites. The instructors of youth ought, of all men, to be the most prudent, accomplished, agreeable, and respectable. What avail a man's parts, if, while he is 'the wisest and brightest,' he is the 'meanest of mankind?' The pernicious effects of bad example on the minds of youth will probably be acknowledged; but, with a view to improvement, it is indispensably necessary that the teachers should possess good breeding and agreeable manners. In order to give full effect to instructions it is requisite that they should proceed from a man who is loved and respected. But a low-bred clown or morose tyrant can command neither love nor respect; and that pupil who has no motive for application to books but the fear of the rod, will not make a scholar."

LETTER FROM REV. HEMAN HUMPHREY, D.D.

"PITTSFIELD, Dec. 12th, 1860.

"HON. HENRY BARNARD: *Dear Sir*—I am glad to hear from you, still engaged in the educational cause, and that you are intending to 'give a picturesque survey of the progress of our common schools, their equipment, studies and character.' If my early recollections and experience will give you any little aid, I shall esteem myself happy in affording it.

"The first school I remember was kept a few weeks by a maiden lady, called Miss Faithy, in a barn. I was very young, as were most of the children. What I learned

then, if any thing, I have forgotten. This was in the summer, of course. The next was a school, so called, kept a month or two by a neighbor of ours, who was the best *trout fisher*, with his horse-hair line, in all those parts. He wrote a fair hand, as I remember, on birch bark. What he taught us, but to say *true* and *due*, has escaped my recollection. We had no school-house then in our district, and we met as much for play as any thing, where we could find shelter. The next winter, another neighbor took us a few weeks into one of the rooms of his own house, where every thing but learning was going on. His speech bewrayed him of Rhode Island origin, and whatever he knew, he certainly could never have had much if any chance of being whipped in school when he was a boy. I remember his tremendous *stamp* when we got noisy in school-time, and that is all. This, however, is not a fair sample of school accommodations in my boyhood; and I had a better chance for two or three winters afterward.

"School Houses.—Most of the other districts in the town had school-houses, but not all. The first winter that I kept school myself, was in a room next to the kitchen in a small private house. Some of the school-houses were better than others; but none of them in that or the adjoining towns were convenient or even comfortable. They were rather *juvenile penitentiaries*, than attractive accommodations for study. They were too small, and low from the ceiling to the floor, and the calculation of the builders seemed to have been, to decide into how small a space the children could be crowded, from the fire-place till the room was well packed. Not unfrequently sixty or seventy scholars were daily shut up six hours, where there was hardly room for thirty. The school-houses were square, with a very narrow entry, and a large fire-place on the side near the door. There were no stoves then. They were generally roughly clapboarded, but never painted. They had writing-desks, or rather, long boards for writing, on two or three sides, next to the wall. The benches were all loose; some of them boards, with slabs from the saw-mill, standing on four legs, two at each end. Some were a little lower than the rest, but many of the smaller children had to sit all day with their legs dangling between the bench and the floor. Poor little things! nodding and trying to keep their balance on the slabs, without any backs to lean against, how I pity them to this day. In the coldest weather, it was hard to tell which was the most difficult, to keep from roasting or freezing. For those nearest to the fire it was sweltering hot, while the ink was freezing in the pens on the back side of the room. '*Master*, I am too hot'—'Master, may I go to the fire?' That was the style of address in those days, and we did our best to be *masters*, anyhow.

"All the school-houses that I remember stood close by the travelled road, without any play-grounds or enclosures whatever. If there were any shade trees planted, or left of spontaneous growth, I have forgotten them. And in most cases, there were no outside accommodations, even the most necessary for a moment's occasion. I now marvel at it, but so it was. In that respect, certainly, the days of the children are better than the days of their fathers were.

"For the most part, the winter schools were miserably supplied with wood. I kept school myself in three towns, and in but one of the schools was there any wood-shed whatever; and no wood was got up and seasoned in summer against winter. Most of what we used was standing in the forests when the school began, and was cut and brought sled length by the farmers in proportion to the number of scholars which they sent. Not exactly that, either; for sometimes, when we went to the school-house in a cold morning, there was *no wood* there. Somebody had neglected to bring his load, and we were obliged to adjourn over to the next day. In many cases, the understanding was, that the larger boys must cut the wood as it was wanted. It always lay in the snow, and sometimes the boys were sent to dig it out in school-time, and bring it in, all wet and green as it was, to keep us from freezing. That was the fuel to make fires with in the morning, when the thermometer was below zero, and how the little children cried with the cold, when they came almost frozen, and found no fire burning; nothing but one or two boys blowing and keeping themselves warm as well as they could, by exercise, in trying to kindle it. Such were our school-houses and their disaccommodations.

"Branches Taught in the Schools.—They were reading, spelling, and writing, besides the A B C's to children scarcely four years old, who ought to have been at home with their mothers. They were called up

twice a day by the master pointing with his penknife 'What's that?' 'A.' 'What's that?' 'D.' 'No, it's B.' 'What's that?' 'N.' 'No, you careless boy, it's C;' and so down to *czand*. 'Go to your seat, you will never learn your lesson in the world, at this rate.' Our school-books were the Bible,' 'Webster's Spelling Book,' and 'Third Part,' mainly. One or two others were found in some schools for the reading classes. Grammar was hardly taught at all in any of them, and that little was confined almost entirely to committing and reciting the rules. Parsing was one of the occult sciences in my day. We had some few lessons in geography, by questions and answers, but no maps, no globes; and as for *black-boards*, such a thing was never thought of till long after. Children's reading and picture books, we had none; the fables in Webster's Spelling Book came nearest to it. Arithmetic was hardly taught at all in the day schools. As a substitute, there were some evening schools in most of the districts. Spelling was one of the leading daily exercises in all the classes, and it was better, a good deal, I think, than it is now.

"The winter schools were commonly kept about three months; in some favored districts *four*, but rarely as long. As none of what are now called the higher branches were taught beyond the merest elements, parents generally thought that three or four months was enough. There were no winter *select* schools for the young above the age of sixteen or seventeen, as I remember, till after I retired from the profession, such as it then was. There may have been here and there an academy, in some parts of the state; but not one within the range of my acquaintance.

"Our Spring Exhibitions.—At the close of the winter schools we had what we used to call our *Quarter-days*, when the schools came together in the meeting-house, with a large congregation of parents and friends. The public exercises were reading, spelling, and speaking single pieces, and dialogues. Some of the dialogues we wrote ourselves, for our own schools. Most of them were certainly very flat; but they brought down the house, and answered the purpose as well as any we could pick up. We thought then, as I think now, that those quarter-days were of great advantage to the schools. The anticipation of them kept up an interest all winter, and stimulated both teachers and scholars to do their best in the way of preparation. As the time approached, we had evening schools for reading and rehearsing the dialogues, so as to be sure not to fall behind in the exhibitions. None of our college commencements are now looked forward to with greater interest than were those vernal anniversaries.

"Another thing that helped us a good deal was the occasional afternoon visits of the parents and other friends of the schools. They came in by invitation, or whenever they chose, and their visits always did us good.

"Still another practice we found to be quite stimulating and useful. We had a mutual understanding that, without giving any notice, any teacher might dismiss his own school for an afternoon, and, taking along with him some of the older boys, call in to see how his brother teacher got along in the next or some other district. The arrangement worked well. We made speeches, complimented one another as politely as circumstances would allow, and went home resolved not to fall behind the best of them.

"In the school, we made up our minds to be masters, in *fact* as well as in name. Though of late years I have not had very good advantages for making the comparison, I believe the schools were quite as well governed sixty years ago as they are now. Among other things which we did to maintain our authority, was to go out now and then and have a snowball skirmish with the boys, and though we commonly got beat, nothing we could do was more effectual.

"*Corporal* punishments, I believe, were sparingly resorted to in most of our schools. Though I myself believed in Solomon fully, I never flogged but one scholar in my life, though I shook the mischief out of a great many. I think Sam was of the opinion, in the premises, that the rod was laid on rather smartly, for I understood he promised, some day, to pay me in kind, which, however, I suppose he never found it quite convenient to undertake.

"We schoolmasters within convenient distances used to meet in the winter evenings for mutual improvement, which, to own the truth, we needed a good deal. Our regular exercises were reading for criticisms, reporting how we were getting along, and conversing upon the best method of managing our schools. This was very profitable, as we thought, to us all.

"In those ancient times, it was an almost universal custom in the rural towns of Connecticut, for the teachers to *board round*, and upon the whole I liked it. It was a good school for us. By going into all the families we learned a great deal. We were looked upon as having more in our heads than we could fairly claim, and they always kept us on the best they had. It is true, the cooking was not always the best, nor sheets always so clean as to guard against infection; and if, perchance, it sometimes broke out, we knew how to cure it.

"Our wages were generally screwed down to the lowest notch by the school committees, under the instruction of the districts. For my first campaign I received *seven* dollars a month and board; for the next, *nine*; for the third, *ten*; and I think I never went above thirteen till quite the last of my teaching before I went to college. As I had some reputation in that line, I suppose I was as well paid as my brethren.

"With regard to the summer schools of that period, I have very little to say. They were kept by females upon very low wages, about as much a week as they could earn in families by spinning or weaving. They took good care of the little children, and taught them as well as they could.

"As we had no grammar schools in which the languages were taught, we most of us fitted for college with our ministers, who, though not very fresh from their classics, did what they could to help us.

"Finally, you ask me whether there were any schools for young ladies in those old times? There may possibly have been in two or three of the largest towns, but the only one of which I had any knowledge was in Litchfield, kept by Miss Pierce, and I am not quite sure that her school was established as early as your question contemplates.

"These, dear sir, are some of my old remembrances, which you may make such use of as you please.

"Respectfully yours,

"H. HUMPHREY."

LETTER FROM HON. JOSEPH T. BUCKINGHAM.

"CAMBRIDGE, Dec. 10th, 1860.

"HENRY BARNARD, ESQ.: *My Dear Sir*—I cheerfully comply with your request to give you some account of the schools and the educational books, that were in use about the close of the last century. I never had the privilege of attending any higher institution of learning than the common district schools of Connecticut, in the town of Windham; but I have no doubt that those of that town were a fair type of many others, probably most of them, except such as were kept in the larger towns or thickly populated villages.

"According to the best of my remembrance, my school-days began in the spring of 1783. The school to which I was admitted was kept by a lady, and, like most of the district schools, was kept only for the younger pupils, and was open for two months during the summer season. The upper class in the school was formed entirely of females—such as could read in the Bible. The lower classes read in spelling books and the New England Primer. The spelling books, of which there were not, probably, more than three or four in the school, I believe were all by Dilworth, and were much worn and defaced, having been a sort of heir-loom in the families of the pupils. The teacher of this school was the daughter of the minister of the parish. She kept a rod hanging on the wall behind her chair and a ferule on the table by her side; but I do not recollect that she used either of them. The girls who constituted the first class were required, every Monday morning, to repeat the text or texts of the preceding day's discourse, stating the book, chapter, and verse whence it was taken. The next summer, 1784, the same lady, or one of her sisters, kept school in the same district. The same books were in use, and there was the same routine of exercises. It was kept on the first floor of the steeple. The lower end of the bell-rope lay in a coil in the centre of the floor. The discipline was so strict, that no one, however mischievously disposed, I believe ever thought of taking hold of it, though it was something of an incumbrance. I was then four years and a half old, and had learned *by heart* nearly all the reading lessons in ther Pimer, and much of the Westminster Catechism, which was taught as the closing exercise every Saturday. But justice to one of the best of mothers requires that I should say that much the greater part of the improvement I had made was acquired from her careful instruction.

"In December, 1784, the month in which I was five years old, I attended, for a few days, the school kept by a master—I do not remember his name. When asked up for

examination, he asked me if I could read without spelling? I said I could read in the Bible. He hesitated a moment, and then placed me on one of the benches, opened a Bible at the fifth chapter of Acts, and asked me to read. I read ten or a dozen verses—being the account of Ananias and his wife falling dead before Peter for telling a lie. Whether he had any suspicion that I had told a falsehood, and took this method to reprove me, I know not; but he dismissed me with approbation. He used his ferule on the hands of some of the elder boys; but the severest punishment that he inflicted for any violation of order, was compelling a boy who had brought into the school the breast-bone of a chicken, (commonly called the *wishing-bone*,) and with which he had excited some noise among the pupils, to stand on one of the benches and wear the bone on his nose till the school was dismissed. I am strongly impressed with the belief that Webster's spelling book made its first appearance in the schools during this winter. The following summer I attended, but very irregularly, a school kept as before in the steeple of the meeting-house,* and had a copy of Webster. Whether there were any other copies in the school or not I am not able to say. The next two winters, circumstances which I have no desire to recall, and which you would not care to be acquainted with, prevented my attending any school. In the summer of 1786, these same circumstances caused me to be removed to another district three miles distant from the central village. The farmer with whom I lived thought I could read well enough, and as the district school-house was a mile or more distant, he considered it unnecessary to send me that distance in the winter, merely *to read;* and consequently for two or three winters I went to school not more than eight or ten days in each. At length, in 1790 or 1791, it was thought I was old enough to learn to *cipher*, and accordingly was permitted to go to school more constantly. I told the master I wanted to learn to cipher. He set me a *sum* in simple addition—*five columns* of figures, and *six figures* in each column. All the instruction he gave me was—add the figures in the first column, carry one for every ten, and set the overplus down under the column. I supposed he meant by the *first* column the left hand column; but what he meant by carrying one for every ten was as much a mystery as Samson's riddle was to the Philistines. I worried my brains an hour or two, and showed the master the figures I had made. You may judge what the amount was, when the columns were added from left to right. The master frowned and repeated his former instruction—add up the column *on the right*, carry one for every ten, and set down the remainder. Two or three afternoons (I did not go to school in the morning) were spent in this way, when I begged to be excused from learning to cipher, and the old gentleman with whom I lived thought it was time wasted; and if I attended the school any further at that time, reading and spelling, and a little writing were all that was taught. The next winter there was a teacher more communicative and better fitted for his place, and under him some progress was made in arithmetic, and I made a tolerable acquisition in the first four rules, according to Dilworth's Schoolmaster's Assistant, of which the teacher and one of the eldest boys had each a copy. The two following winters, 1794 and 1795, I mastered all the rules and examples in the first part of Dilworth; that is, through the various chapters of Rule of Three, Practice, Fellowship, Interest, etc. etc., to Geometrical Progression and Permutation.

"In our district, the books were of rather a miscellaneous character, such as had been in families perhaps half a century or more. My belief is that Webster's Spelling Book was not in general use before 1790 or 1791. The Bible was read by the first class in the morning, always, and generally in the afternoon before the closing exercise, which was always a lesson in spelling, and this was performed by all the pupils who were sufficiently advanced to pronounce distinctly words of more than one syllable. It was the custom for all such pupils to stand together as one class, and with *one voice* to read a column or two of the tables for spelling. The master gave the signal to begin, and all united to read, letter by letter, pronouncing each syllable by itself, and adding it to the preceding one till the word was complete. Thus, a-d *ad*, m-i *mi*, *admi*, r-a *ra*, *admira*, t-i-o-n *shun*, *admiration*. This mode of reading was exceedingly exciting, and, in my humble judgment, exceedingly useful; as it required and taught deliberate and distinct articulation, and inspired the youngest with a desire

* This was the last time I went to a *summer* school.

to equal the older ones. It is true the voices would not all be in perfect unison; but after a little practice they began to assimilate. I have heard a class of thirty or more read column after column in this manner, with scarcely a perceptible variation from the proper pitch of voice. When the lesson had been thus read, the books were closed, and the words given out for spelling. If one was misspelt, it passed on to the next, and the next pupil in order, and so on till it was spelt correctly. Then the pupil who had spelt correctly went up in the class *above* the one who had misspelt. It was also a practice, when one was absent from this exercise in spelling, that he should stand at the foot of the class when he returned. Another of our customs was to choose sides to spell once or twice a week. The words to be spelt went from side to side; and at the conclusion, the side which *beat* (spelt the most words) were permitted to leave the schoolroom, preceding the other side, who had to sweep the room and build the fires the next morning. These customs prevalent sixty and seventy years ago excited emulation, and emulation produced improvement. A revival of them, I have no doubt, would be advantageous in the common schools, especially where pupils are required to spell words given out indiscriminately from a reading book or dictionary. There was not, to my knowledge, any *reading book* proper, except the Bible, till Webster's Third Book, so called, came out about 1793 or 1794. A new edition of his spelling book furnished some new matter for reading—selections from the New Testament, a chapter of Proverbs, and a set of Tables, etc.; but none of these operated to the exclusion of the Bible.

"In the family in which I lived there were three or four old spelling books, which I presume had been used in schools before the period of my remembrance. One of these was a book of less than a hundred pages, printed in London, I think in 1690. The words were arranged in tables according to syllables. The terminations tion, sion, cial, tial, etc., were all divided and printed as two distinct syllables. (And I believe this mode of printing is still continued in England. It was in the time of Lindley Murray, as may be seen in his spelling book, printed about forty years ago.) This spelling book contained a numeration table which, from a singular feature, early attracted my attention. Every figure was 9, and the whole formed a curious triangle. Thus:

9
99
999 and so on to the last, 999,999,999

"Another spelling book in our farmer's library was by Daniel Fenning, printed in London. It contained a short treatise on grammar, on which I sometimes exercised my memory, but understood not one of its principles. We had also a Dilworth, containing certain fables—such as Jupiter and the Frogs, the Romish Priest and the Jester, Hercules and the Wagoner, etc., etc. Another still we had, the author of which I never knew, as several pages had been lost from the beginning. It had a page of proverbs, one of which—'a cat may look upon a king'—occasioned me much thoughtful exercise. It also had an appropriate collection of couplets for writing-copies, of which the only one I recollect was this:

"'X things a penman should have near at hand—
Paper, pounce, pen, ink, knife, hone, rule, plummet, wax, sand.'

But that which rendered the book so memorable as never to be forgotten, was the astonishing, if not terrific, word of fourteen syllables—'Ho-no-ri-fi-ca-bi-li-tu-di-ni-tu-bus-que'—asserted to be the longest word in the English language.

"In the winter of 1793–4, we had for a teacher ERASTUS RIPLEY, an under-graduate of Yale College. I mention his name, because I cannot but look back upon the time when I had the advantage of his instruction without a feeling of reverence for the man and respect for the teacher. I learned more from him than all the schoolmasters I had been under. He took more pains to instruct us in reading than all his predecessors within my knowledge. He opened the school every morning with prayer—which had not been practised in our district. He was preparing for the ministry, and was afterwards settled at Canterbury, I think. He was highly esteemed by all the people of the district, and gave such an *impetus* to the ambition of the pupils, that a subscription was made to employ him an extra month after the usual term of the school had expired.

"Mr. Ripley was succeeded in the winter of 1794–5 by a young man from Lebanon by the name of Tisdale, under whom my

school days were finished; and here I may bring this long and, I fear, very uninteresting letter to a close. Hoping this may serve the purpose for which you suggested the writing of it, and wishing you all the success you can desire in the noble cause in which you are engaged,

"I am, very respectfully
"And truly yours,
"JOSEPH T. BUCKINGHAM."

LETTER FROM REV. ELIPHALET NOTT, D.D., DATED JAN., 1861.

"When I was a boy, seventy-five or eighty years ago, in good old Puritan Connecticut, it was *felt* as a practical maxim 'that to spare the rod was to spoil the child;' and on this maxim the pedagogue acted in the school-room, and applied it for every offence, real or imaginary; and for having been whipped at school by the relentless master, the unfortunate tyro was often whipped at home by his no less relentless father; so that between the two relentless executors of justice among the Puritan fathers, few children, I believe, were spoiled by the withholding of this orthodox discipline. For myself, I can say (and I do not think I was wayward beyond the average of district school-boys) that, in addition to warnings, and admonitions daily, if I was not whipped more than three times a week, I considered myself for the time peculiarly fortunate.

"Being of a contemplative and forbearing disposition, this discipline of the rod became peculiarly irksome to me, and, as I thought, unjustifiable; and I formed a resolution, if I lived to be a man, I would not be like other men in regard to their treatment of children.

"Through the mercy of God I did live to be a man, and when at the age of eighteen I became installed as master of a district school in the eastern part of Franklin, Connecticut—a school where rebellious spirits had previously asserted their rights, and been subdued or driven from the school by the use of the rod—nothing daunted, I made up my mind to substitute in my school moral motives in the place of the rod; and I frankly told my assembled pupils so, and that if they would have the generosity to second my efforts, they would secure to themselves and furnish me and their parents the happiness which is the heaven-appointed reward of well-doing.

"The school responded to my appeal, and thereafter, though we played and gambolled together as equals in play-hours, and on Saturday afternoons, which were also devoted to play, the moment we entered the school-room, a subordination and application to study was observable, that became matter of remark and admiration among the inhabitants of the district, the fame of which success extended to other districts, and even to adjoining towns, so that the examination and exhibition with which the school closed the ensuing spring, called together clergymen and other officials from places quite remote.

"This success brought me to the knowledge of the trustees of the Plainfield Academy, one of the most important, if not at the time the most important academy in the state, and I was by a unanimous vote appointed principal of said academy—an institution in which several hundred children of both sexes were in the same building successfully taught and governed, for years, without the use of the rod, it being at that time the prevailing usage, both in district schools and academies, for the two sexes to be taught in the same room, and subjected to the same form of government.

"This successful experiment in the use of moral suasion, and other kindred and kindly influences, in place of the rod, led to other and kindred experiments, until, whether for the better or the worse, the rod at length came to occupy a very subordinate place in the system of school education.

"In those days, education in common schools was not so diffusive as at the present day; but quite as thorough, if not more so. The same remark may be applied to the higher schools or academies—the whole field of natural science being at that time, for the most part, unexplored; but mathematics and classics were zealously taught. In evidence of this, though inferior in attainments to some of my classmates, I published successfully myself an almanac when about twenty-one years of age.

"As the rod in those days was the principal instrument in common school education, so when I was afterward called to Union College, fines, suspensions, and expulsions were the principal instruments of collegiate government. The faculty sat in their robes as a court, caused offenders to be brought before them, examined witnesses, heard defences, and pronounced sentences with the solemnity of other courts of justice; and though Union College had on its ca-

logue but a very diminutive number of students, the sitting of the faculty as a court occupied no inconsiderable part of the time of its president and professors.

"Soon after I became connected with the college as its president, a case of discipline occurred which led to the trial and issued in the expulsion of a student belonging to a very respectable family in the city of Albany. According to the charter of Union College, the sentence of the faculty is not final. An appeal can be taken to the board of trustees, and in the case in question an appeal was taken, and, after keeping college in confusion for months, by the different hearings of the case, the board reversed the decision of the faculty, and restored the young man. On the event of this restoration, I informed them that they should never, during my administration, have occasion to review another case of discipline by the faculty; and during the fifty-six years which have since passed away, I have kept my word; and though we have been less successful in our system of parental government than could be wished, we have had no rebellions, and it is conceded, I believe generally, that quite as large a proportion of our young men have succeeded in after life as of any other collegiate institution in the Union."

RECOLLECTIONS OF PETER PARLEY.

The following picture of the District School as it was a few years later, in the town of Ridgefield,* one of the most advanced agricultural communities of Connecticut, is from the pen of Peter Parley, in his "*Recollections of a Lifetime.*"

"About three fourths of a mile from my father's house, on the winding road to Lower Salem, which bore the name of West Lane, was the school-house where I took my first lessons, and received the foundations of my very slender education. I have since been sometimes asked where I graduated: my reply has always been, 'At West Lane.' Generally speaking, this has ended the inquiry, whether because my interlocutors have confounded this venerable institution with 'Lane Seminary,' or have not thought it worth while to risk an exposure of their ignorance as to the college in which I was educated, I am unable to say.

"The site of the school-house was a triangular piece of land, measuring perhaps a rood in extent, and lying, according to the custom of those days, at the meeting of four roads. The ground hereabouts—as everywhere else in Ridgefield—was exceedingly stony, and in making the pathway the stones had been thrown out right and left, and there remained in heaps on either side, from generation to generation. All round was bleak and desolate. Loose, squat stone walls, with innumerable breaches, inclosed adjacent fields. A few tufts of elder, with here and there a patch of briers and poke-weed, flourished in the gravelly soil. Not a tree, however, remained, save an aged chestnut, at the western angle of the space. This certainly had not been spared for shade or ornament, but probably because it would have cost too much labor to cut it down, for it was of ample girth. At all events it was the oasis in our desert during summer; and in autumn, as the burrs disclosed its fruit, it resembled a besieged city. The boys, like so many catapults, hurled at it stones and sticks, until every nut had capitulated.

"Two houses only were at hand: one, surrounded by an ample barn, a teeming orchard, and an enormous wood-pile, belonged to Granther Baldwin; the other was the property of 'Old Chich-es-ter,' an uncouth, unsocial being, whom everybody for some reason or other seemed to despise and shun. His house was of stone and of one story. He had a cow, which every year had a calf. He had a wife—filthy, uncombed, and vaguely reported to have been brought from the old country. This is about the whole history of the man, so far as it is written in the authentic traditions of the parish. His

* "Nearly all the inhabitants of Ridgefield were farmers, with the few mechanics that were necessary to carry on society in a somewhat primeval state. Even the persons not professionally devoted to agriculture, had each his farm, or at least his garden and home lot, with his pigs, poultry, and cattle. The population might have been 1200, comprising 200 families. All could read and write, but in point of fact, beyond the Almanac and Watts' Psalms and Hymns, their literary acquirements had little scope. There were, I think, four newspapers, all weekly, published in the state: one at Hartford, one at New London, one at New Haven, and one at Litchfield. There were, however, not more than three subscribers to all these in our village. We had, however, a public library of some 200 volumes, and what was of equal consequence—the town was on the road which was then the great thoroughfare, connecting Boston with New York, and hence it had means of intelligence from travellers constantly passing through the place, which kept it up with the march of events."

premises, an acre in extent, consisted of a tongue of land between two of the converging roads. No boy, that I ever heard of, ventured to cast a stone or to make an incursion into this territory, though it lay close to the school-house. I have often, in passing, peeped timidly over the walls, and caught glimpses of a stout man with a drab coat, drab breeches, and drab gaiters, glazed with ancient grease and long abrasion, prowling about the house; but never did I discover him outside of his own dominion. I know it was darkly intimated that he had been a tory, and was tarred and feathered in the revolutionary war, but as to the rest he was a perfect myth. Granther Baldwin was a character no less marked, but I must reserve his picture for a subsequent letter.

"The school-house itself consisted of rough, unpainted clapboards, upon a wooden frame. It was plastered within, and contained two apartments—a little entry, taken out of a corner for a wardrobe, and the school-room proper. The chimney was of stone, and pointed with mortar, which, by the way, had been dug into a honeycomb by uneasy and enterprising penknives. The fireplace was six feet wide and four feet deep. The flue was so ample and so perpendicular, that the rain, sleet, and snow fell direct to the hearth. In winter, the battle for life with green fizzling fuel, which was brought in sled lengths and cut up by the scholars, was a stern one. Not unfrequently, the wood, gushing with sap as it was, chanced to be out, and as there was no living without fire, the thermometer being ten or twenty degrees below zero, the school was dismissed, whereat all the scholars rejoiced aloud, not having the fear of the schoolmaster before their eyes.

"It was the custom at this place to have a woman's school in the summer months, and this was attended only by young children. It was, in fact, what we now call a primary or infant school. In winter, a man was employed as teacher, and then the girls and boys of the neighborhood, up to the age of eighteen, or even twenty, were among the pupils. It was not uncommon, at this season, to have forty scholars crowded into this little building.

"I was about six years old when I first went to school. My teacher was Aunt Delight, that is, Delight Benedict, a maiden lady of fifty, short and bent, of sallow complexion and solemn aspect. I remember the first day with perfect distinctness. I went alone—for I was familiar with the road, it being that which passed by our old house. I carried a little basket, with bread and butter within, for my dinner, the same being covered over with a white cloth. When I had proceeded about half way, I lifted the cover, and debated whether I would not eat my dinner then. I believe it was a sense of duty only that prevented my doing so, for in those happy days I always had a keen appetite. Bread and butter were then infinitely superior to *paté de foie gras* now; but still, thanks to my training, I had also a conscience. As my mother had given me the food for dinner, I did not think it right to convert it into lunch, even though I was strongly tempted.

"I think we had seventeen scholars—boys and girls—mostly of my own age. Among them were some of my after companions. I have since met several of them—one at Savannah, and two at Mobile, respectably established, and with families around them. Some remain, and are now among the gray old men of the town; the names of others I have seen inscribed on the tombstones of their native village. And the rest—where are they?

"The school being organized, we were all seated upon benches, made of what were called *slabs*—that is, boards having the exterior or rounded part of the log on one side: as they were useless for other purposes, these were converted into school-benches, the rounded part down. They had each four supports, consisting of straddling wooden legs, set into auger holes. Our own legs swayed in the air, for they were too short to touch the floor. Oh, what an awe fell over me, when we were all seated and silence reigned around!

"The children were called up, one by one, to Aunt Delight, who sat on a low chair, and required each, as a preliminary, to make his manners, consisting of a small sudden nod or jerk of the head. She then placed the spelling-book—which was Dilworth's—before the pupil, and with a buck-handled penknife pointed, one by one, to the letters of the alphabet, saying, 'What's that?' If the child knew his letters the 'What's that?' very soon ran on thus:

"'What's that?'

"'A.'

"''Stha-a-t?'

"'B.'

"'Sna-a-a-t?'

"'C.'

"'Sna-a-a-t?'

"'D.'

"'Sna-a-a-t?'

"'E.' &c.

"I looked upon these operations with intense curiosity and no small respect, until my own turn came. I went up to the school-mistress with some emotion, and when she said, rather spitefully, as I thought, 'Make your obeisance!' my little intellects all fled away, and I did nothing. Having waited a second, gazing at me with indignation, she laid her hand on the top of my head, and gave it a jerk which made my teeth clash. I believe I bit my tongue a little; at all events, my sense of dignity was offended, and when she pointed to A, and asked what it was, it swam before me dim and hazy, and as big as a full moon. She repeated the question, but I was doggedly silent. Again, a third time, she said, 'What's that?' I replied: 'Why don't you tell me what it is? I didn't come here to learn you your letters!' I have not the slightest remembrance of this, for my brains were all a-woolgathering; but as Aunt Delight affirmed it to be a fact, and it passed into tradition, I put it in. I may have told this story some years ago in one of my books, imputing it to a fictitious hero, yet this is its true origin, according to my recollection.

"What immediately followed I do not clearly remember, but one result is distinctly traced in my memory. In the evening of this eventful day, the school-mistress paid my parents a visit, and recounted to their astonished ears this, my awful contempt of authority. My father, after hearing the story, got up and went away; but my mother, who was a careful disciplinarian, told me not to do so again! I always had a suspicion that both of them smiled on one side of their faces, even while they seemed to sympathize with the old petticoat and penknife pedagogue, on the other; still I do not affirm it, for I am bound to say, of both my parents, that I never knew them, even in trifles, say one thing while they meant another.

"I believe I achieved the alphabet that summer, but my after progress, for a long time, I do not remember. Two years later I went to the winter-school at the same place, kept by Lewis Olmstead—a man who had a call for plowing, mowing, carting manure, etc., in summer, and for teaching school in the winter, with a talent for music at all seasons, wherefore he became chorister upon occasion, when, peradventure, Deacon Hawley could not officiate. He was a celebrity in ciphering, and 'Squire Seymour declared that he was the greatest 'arithmeticker' in Fairfield county. All I remember of his person is his hand, which seemed to me as big as Goliah's, judging by the claps of thunder it made in my ears on one or two occasions.

"The next step of my progress which is marked in my memory, is the spelling of words of two syllables. I did not go very regularly to school, but by the time I was ten years old I had learned to write, and had made a little progress in arithmetic. There was not a grammar, a geography, or a history of any kind in the school. Reading, writing, and arithmetic were the only things taught, and these very indifferently—not wholly from the stupidity of the teacher, but because he had forty scholars, and the standards of the age required no more than he performed. I did as well as the other scholars, certainly no better. I had excellent health and joyous spirits; in leaping, running, and wrestling, I had but one superior of my age, and that was Stephen Olmstead, a snug-built fellow, smaller than myself, and who, despite our rivalry, was my chosen friend and companion. I seemed to live for play: alas! how the world has changed since I have discovered that we live to agonize over study, work, care, ambition, disappointment, and then ——?

"As I shall not have occasion again, formally, to introduce this seminary into my narrative, I may as well close my account of it now. After I had left my native town for some twenty years, I returned and paid it a visit. Among the monuments that stood high in my memory was the West Lane school-house. Unconsciously carrying with me the measures of childhood, I had supposed it to be at least thirty feet square; how had it dwindled when I came to estimate it by the new standards I had formed! It was in all things the same, yet wholly changed to me. What I had deemed a respectable edifice, as it now stood before me was only a weather-beaten little shed, which, upon being measured, I found to be less than twenty feet square. It happened to be a warm, summer day, and I ventured to enter the place. I found a girl,

some eighteen years old, keeping 'a ma'am school' for about twenty scholars, some of whom were studying Parley's Geography. The mistress was the daughter of one of my schoolmates, and some of the boys and girls were grandchildren of the little brood which gathered under the wing of Aunt Delight, when I was an a-b-c-darian. None of them, not even the school-mistress, had ever heard of me. The name of my father, as having ministered unto the people of Ridgefield in some bygone age, was faintly traced in their recollection. As to Peter Parley, whose Geography they were learning—they supposed him some decrepit old gentleman hobbling about on a crutch, a long way off, for whom, nevertheless, they had a certain affection, inasmuch as he had made geography into a story-book. The frontispiece-picture of the old fellow, with his gouty foot in a chair, threatening the boys that if they touched his tender toe, he would tell them no more stories, secured their respect, and placed him among the saints in the calendar of their young hearts. Well, thought I, if this goes on I may yet rival Mother Goose!

"At the age of ten years I was sent to the up-town school, the leading seminary of the village, for at this period it had not arrived at the honor of an academy, the institution being then, and many years after, under the charge of Master Stebbins. He was a man with a conciliating stoop in the shoulders, a long body, short legs, and a swaying walk. He was, at this period, some fifty years old, his hair being thin and silvery, and always falling in well-combed rolls over his coat-collar. His eye was blue, and his dress invariably of the same color. Breeches and knee-buckles, blue-mixed stockings, and shoes with bright buckles, seemed as much a part of the man as his head and shoulders. On the whole, his appearance was that of the middle-class gentleman of the olden time, and he was in fact what he seemed.

"This seminary of learning for the rising aristocracy of Ridgefield was a wooden edifice, thirty by twenty feet, covered with brown clapboards, and, except an entry, consisted of a single room. Around and against the walls ran a continuous line of seats, fronted by a continuous writing-desk. Beneath, were depositories for books and writing materials. The centre was occupied by slab seats, similar to those of West Lane. The larger scholars were ranged on the outer sides, at the desks; the smaller fry of a-b-c-darians were seated in the centre. The master was enshrined on the east side of the room, contrary, be it remembered, to the law of the French savans, which places dominion invariably in the west. Regular as the sun, Master Stebbins was in his seat at nine o'clock, and the performances of the school began.

"According to the Catechism—which, by the way, we learned and recited on Saturday—the chief end of man was to glorify God and keep his commandments: according to the routine of this school, one would have thought it to be reading, writing, and arithmetic, to which we may add spelling. From morning to night, in all weathers, through every season of the year, these exercises were carried on with the energy, patience, and perseverance of a manufactory.

"Master Stebbins respected his calling: his heart was in his work; and so, what he pretended to teach, he taught well. When I entered the school, I found that a huge stride had been achieved in the march of mind since I had left West Lane. Webster's Spelling Book had taken the place of Dilworth, which was a great improvement. The drill in spelling was very thorough, and applied every day to the whole school. I imagine that the exercises might have been amusing to a stranger, especially as one scholar would sometimes go off in a voice as grum as that of a bull-frog, while another would follow in tones as fine and piping as a peet-weet. The blunders, too, were often ineffably ludicrous; even we children would sometimes have tittered, had not such an enormity been certain to have brought out the birch. As to rewards and punishments, the system was this: whoever missed went down; so that perfection mounted to the top. Here was the beginning of the up and down of life.

"Reading was performed in classes, which generally plodded on without a hint from the master. Nevertheless, when Zeek Sanford—who was said to have a streak of lightning in him—in his haste to be smart, read the 37th verse of the 2d chapter of the Acts—'Now when they heard this, they were *pickled* in their heart'—the birch stick on Master Stebbins's table seemed to quiver and peel at the little end, as if to give warning of the wrath to come. When Orry Keeler—Orry was a girl, you know, and not a boy—drawled out in spelling: k—o—n,

kau, s—h—u—n—t—s, *shunts*, konshunts—the bristles in the master's eyebrows fidgeted like Aunt Delight's knitting-needles. Occasionally, when the reading was insupportably bad, he took a book and read himself, as an example.

"We were taught arithmetic in Daboll, then a new book, and which, being adapted to our measures of length, weight, and currency, was a prodigious leap over the head of poor old Dilworth, whose rules and examples were modelled upon English customs. In consequence of the general use of Dilworth in our schools, for perhaps a century—pounds, shillings, and pence were classical, and dollars and cents vulgar, for several succeeding generations. 'I would not give a penny for it,' was genteel; 'I would not give a cent for it,' was plebeian. We have not yet got over this: we sometimes say *red cent* in familiar parlance, but it can hardly be put in print without offence.

"Master Stebbins was a great man with a slate and pencil, and I have an idea that we were a generation after his own heart. We certainly achieved wonders according to our own conceptions, some of us going even beyond the Rule of Three, and making forays into the mysterious region of Vulgar Fractions. Several daring geniuses actually entered and took possession.

"But after all, penmanship was Master Stebbins's great accomplishment. He had no magniloquent system; no pompous lessons upon single lines and bifid lines, and the like. The revelations of inspired copy-book makers had not then been vouchsafed to man. He could not cut an American eagle with a single flourish of a goose-quill. He was guided by good taste and native instinct, and wrote a *smooth round hand*, like copper-plate. His lessons from A to &, all written by himself, consisted of pithy proverbs and useful moral lessons. On every page of our writing-books he wrote the first line himself. The effect was what might have been expected—with such models, patiently enforced, nearly all became good writers.

"Beyond these simple elements, the Uptown school made few pretensions. When I was there, two Webster's Grammars and one or two Dwight's Geographies were in use. The latter was without maps or illustrations, and was in fact little more than an expanded table of contents, taken from Morse's Universal Geography—the mammoth monument of American learning and genius of that age and generation. The grammar was a clever book; but I have an idea that neither Master Stebbins nor his pupils ever fathomed its depths. They floundered about in it, as if in a quagmire, and after some time came out pretty nearly where they went in, though perhaps a little obfuscated by the dim and dusky atmosphere of these labyrinths.

"The fact undoubtedly is, that the art of teaching, as now understood, beyond the simplest elements, was neither known nor deemed necessary in our country schools in their day of small things. Repetition, drilling, line upon line, and precept upon precept, with here and there a little of the birch—constituted the entire system.

"Let me here repeat an anecdote, which I have indeed told before, but which I had from the lips of its hero, G.... H...., a clergyman of some note thirty years ago, and which well illustrates this part of my story. At a village school, not many miles from Ridgefield, he was put into Webster's Grammar. Here he read, '*A noun is the name of a thing—as horse, hair, justice.*' Now in his innocence, he read it thus: '*A noun is the name of a thing—as horse-hair justice.*'

"'What then,' said he, ruminating deeply, 'is a noun? But first I must find out what a horse-hair justice is.'

"Upon this he meditated for some days, but still he was as far as ever from the solution. Now his father was a man of authority in those parts, and moreover he was a justice of the peace. Withal, he was of respectable ancestry, and so there had descended to him a somewhat stately high-backed settee, covered with horse-hair. One day, as the youth came from school, pondering upon the great grammatical problem, he entered the front door of the house, and there he saw before him, his father, officiating in his legal capacity, and seated upon the old horse-hair settee. 'I have found it!' said the boy to himself, as greatly delighted as was Archimedes when he exclaimed *Eur ka*—'my father is a horse-hair justice, and therefore a noun!'

"Nevertheless, it must be admitted that the world got on remarkably well in spite of this narrowness of the country schools. The elements of an English education were pretty well taught throughout the village seminaries of Connecticut, and I may add,

of New England. The teachers were heartily devoted to their profession: they respected their calling, and were respected and encouraged by the community. They had this merit, that while they attempted but little, that, at least, was thoroughly performed.

"As to the country at large, it was a day of quiet, though earnest action: Franklin's spirit was the great schoolmaster abroad'—teaching industry, perseverance, frugality, and thrift, as the end and aim of ambition. The education of youth was suited to what was expected of them. With the simple lessons of the country schools, they moved the world immediately around them. Though I can recollect only a single case—that already alluded to of Ezekiel Sanford—in which one of Master Stebbins's scholars attained any degree of literary distinction, still, quite a number of them, with no school learning beyond what he gave them, rose to a certain degree of eminence. His three sons obtained situations in New York as accountants, and became distinguished in their career. At one period there were three graduates of his school, who were cashiers of banks in that city. My mind adverts now with great satisfaction to several names among the wealthy, honorable, and still active merchants of the great metropolis, who were my fellow-students of the Up-town school, and who there began and completed their education."

To the advantages, such as they were, of the district school, Mr. Goodrich adds an account of his experience on the farm, and his juvenile sports, as well as his early attempts at *whittling* and other mechanical arts, and adds the following reflections:—

"Now all these things may seem trifles, yet in a review of my life, I deem them of some significance. This homely familiarity with the more mechanical arts was a material part of my education; this communion with nature gave me instructive and important lessons from nature's open book of knowledge. My technical education, as will be seen hereafter, was extremely narrow and irregular. This defect was at last partially supplied by the commonplace incidents I have mentioned. The teaching, or rather the training of the senses, in the country—ear and eye, foot and hand, by running, leaping, climbing over hill and mountain, by occasional labor in the garden and on the farm, and by the use of tools—and all this in youth, is sowing seed which is repaid largely and readily to the hand of after cultivation, however unskilful it may be. This is not so much because of the amount of knowledge available in after-life, which is thus obtained—though this is not to be despised—as it is that healthful, vigorous, manly habits and associations—physical, moral, and intellectual—are thus established and developed.

"It is a riddle to many people that the emigrants from the country into the city, in all ages, outstrip the natives, and become their masters. The reason is obvious: country education and country life are practical, and invigorating to body and mind, and hence those who are thus qualified triumph in the race of life. It has always been, it will always be so; the rustic Goths and Vandals will march in and conquer Rome, in the future, as they have done in the past. I say this, by no *means* insisting that *my* own life furnishes any very striking proof of the truth of my remarks; still, I may say that but for the country training and experience I have alluded to, and which served as a foothold for subsequent progress, I should have lingered in my career far behind the humble advances I have actually made.

"Let me illustrate and verify my meaning by specific examples. In my youth I became familiar with every bird common to the country: I knew his call, his song, his hue, his food, his habits; in short, his natural history. I could detect him by his flight, as far as the eye could reach. I knew all the quadrupeds—wild as well as tame. I was acquainted with almost every tree, shrub, bush, and flower, indigenous to the country; not botanically, but according to popular ideas. I recognized them instantly, wherever I saw them; I knew their forms, hues, leaves, blossoms, and fruit. I could tell their characteristics, their uses, the legends and traditions that belonged to them. All this I learned by familiarity with these objects; meeting with them in all my walks and rambles, and taking note of them with the emphasis and vigor of early experience and observation. In after days, I have never had time to make natural history a systematic study; yet my knowledge as to these things has constantly accumulated, and that without special effort. When I have travelled in other countries, the birds, the animals, the vegetation, have interested me as well by their resemblances as their differences, when compared with our own.

In looking over the pages of scientific works on natural history, I have always read with eagerness and intelligence of preparation; indeed, of vivid and pleasing associations. Every idea I had touching these matters was living and sympathetic, and beckoned other ideas to it, and these again originated still others. Thus it is that in the race of a busy life, by means of a homely, hearty start at the beginning, I have, as to these subjects, easily and naturally supplied, in some humble degree, the defects of my irregular education, and that too, not by a process of repulsive toil, but with a relish superior to all the seductions of romance. I am therefore a believer in the benefits accruing from simple country life and simple country habits, as here illustrated, and am, therefore, on all occasions anxious to recommend them to my friends and countrymen. To city people, I would say, educate your children, at least partially, in the country, so as to imbue them with the love of nature, and that knowledge and training which spring from simple rustic sports, exercises, and employments. To country people, I would remark, be not envious of the city, for in the general balance of good and evil, you have your full portion of the first, with a diminished share of the last."

THE HOMESPUN ERA OF COMMON SCHOOLS.
BY HORACE BUSHNELL, D.D.

"But the schools—we must not pass by these, if we are to form a truthful and sufficient picture of the homespun days. The schoolmaster did not exactly go round the district to fit out the children's minds with learning, as the shoemaker often did to fit their feet with shoes, or the tailors to measure and cut for their bodies; but, to come as near it as possible, he boarded round, (a custom not yet gone by,) and the wood for the common fire was supplied in a way equally primitive, viz., by a contribution of loads from the several families, according to their several quantities of childhood. The children were all clothed alike in homespun; and the only signs of aristocracy were, that some were clean and some a degree less so, some in fine white and striped linen, some in brown tow crash; and, in particular, as I remember, with a certain feeling of quality I do not like to express, the good fathers of some testified the opinion they had of their children, by bringing fine round loads of hickory wood to warm them, while some others, I regret to say, brought only scanty, scraggy, ill-looking heaps of green oak, white birch, and hemlock. Indeed, about all the bickerings of quality among the children, centered in the quality of the wood pile. There was no complaint, in those days, of the want of ventilation; for the large open fire-place held a considerable fraction of a cord of wood, and the windows took in just enough air to supply the combustion. Besides, the bigger lads were occasionally ventilated, by being sent out to cut wood enough to keep the fire in action. The seats were made of the outer slabs from the saw-mill, supported by slant legs driven into and a proper distance through auger holes, and planed smooth on the top by the rather tardy process of friction. But the spelling went on bravely, and we ciphered away again and again, always till we got through Loss and Gain. The more advanced of us, too, made light work of Lindley Murray, and went on to the parsing, finally, of extracts from Shakspeare and Milton, till some of us began to think we had mastered their tough sentences in a more consequential sense of the term than was exactly true. O, I remember (about the remotest thing I can remember) that low seat, too high, nevertheless, to allow the feet to touch the floor, and that friendly teacher who had the address to start a first feeling of enthusiasm and awaken the first sense of power. He is living still, and whenever I think of him, he rises up to me in the far background of memory, as bright as if he had worn the seven stars in his hair. (I said he is living; yes, he is here to-day, God bless him!) How many others of you that are here assembled, recall these little primitive universities of homespun, where your mind was born, with a similar feeling of reverence and homely satisfaction. Perhaps you remember, too, with a pleasure not less genuine, that you received the classic discipline of the university proper, under a dress of homespun, to be graduated, at the close, in the joint honors of broadcloth and the parchment."

We might add other lights and shades to the picture of school life as it was down to a very recent period in New England and New York, but we must refer our readers to that amusing and instructive volume of Rev. Warren Burton, "The District School as it was." We must pass to the elementary schools of Pennsylvania and the Southern States.

LETTER FROM WILLIAM DARLINGTON, M.D., LL.D.

"At your request, I propose to attempt a brief and hasty sketch of my acquaintance with, and reminiscences of the *Country Schools*, and their condition, some sixty-five or seventy years since, in the south-eastern corner of the state of Pennsylvania; more particularly the school at Birmingham, Chester county, where the limited instruction of my youthful days was chiefly acquired.

"My earliest recollections of the school to which I was sent go back to that trying period of loose government, rusticity, and scarcity experienced in the interval between the War of Independence and the adoption of the Federal Constitution; and if it were given me to wield the pen of *Tom Brown of Rugby*, I might peradventure furnish some graphic details of our rural seminaries of learning in those days of general destitution. But, under present circumstances, I can only offer the imperfect narrative of incidents and observations, as retained in an almost octogenarian memory.

"At the time when I was first sent to school—say in 1787-8—school-houses were rare; and there was little or no organization for their maintenance. The country round, having been recently ravaged by a hostile army, was scantily supplied with teachers, who occasionally obtained schools by going among the principal families of the vicinage, and procuring subscribers for a quarter's tuition of the children on hand. Those who were too young to be serviceable on the farm were allowed to go to school in the summer season; but the larger ones (*expertus loquor*) could only be spared for that purpose during winter. The extent of rural instruction was then considered to be properly limited to what a worthy London alderman designated as the *three R's*, viz., 'Reading, Riting, and Rithmetic.' To cipher beyond the *Rule of Three* was deemed a notable achievement and mere surplusage among the average of country scholars. The business of teaching, at that day, was disdainfully regarded as among the humblest and most unprofitable of callings; and the *teachers*—often low-bred, intemperate adventurers from the old world—were generally about on a *par* with the prevalent estimate of the profession. Whenever a thriftless vagabond was found to be good for nothing else, he would resort to *school-keeping*, and teaching young American ideas how to shoot! It was my good fortune, however, to have a teacher who was a distinguished exception to the sorry rule referred to. JOHN FORSYTHE was a native of the Emerald Isle, born in 1754, received a good English education at home, and while yet a young man, migrated to the county of *Chester*, in the land of PENN, where he became an excellent schoolmaster. When he arrived in our quakerly settlement, he was a gay young Presbyterian, dressed in the fashionable apparel of the world's people; and being withal musical in his taste, was an expert performer on the violin. He soon, however, adopted the views and principles of the 'Friends,' among whom he remained, married one of the society, and was ever recognized as an exemplary and valuable member.

"As the head and master-spirit of the school, at Birmingham meeting-house, established under the auspices of the Quaker society, he taught for a number of years, and always applied himself *con amore* to his arduous duties. He accomplished more in exciting a taste for knowledge and developing young intellects, than any teacher who had theretofore labored in that hopeful vineyard. He effectually routed the lingering old superstitions, prejudices, and benighted notions of preceding generations, and ever took delight in introducing youthful genius to the bright fields of literature and science. The young men of his day, who have since figured in the world, were deeply indebted to John Forsythe for the aid which he afforded them in their studies, as well as for the sound doctrines which he inculcated; and some few of them yet survive to make the grateful acknowledgment.

"When the noble Quaker institution at *West-town* was erected, near the close of the last century, the skill and experience of John Forsythe were put in requisition, until it was fairly inaugurated; after which he retired to his comfortable farm, in East Bradford, where he passed a venerable old age, until his 87th year, in superintending agricultural employments and in manifesting a lively interest in the progress of education among our people. No instructor has labored in this community more faithfully, nor with better effect. None has left a memory more worthy to be kindly cherished.

"The old *school-house* at Birmingham was a one story stone building, erected by men who did not understand the subject; and

was badly lighted and ventilated. The *discipline* of that day (adopted from the mother country) was pretty severe. The real *birch* of the botanists not being indigenous in the immediate vicinity of the school, an efficient substitute was found in young apple tree sprouts, as unruly boys were abundantly able to testify.

"The *school books* of my earliest recollection were a cheap English spelling book, the Bible for the reading classes, and when we got to ciphering, the 'Schoolmasters' Assistant.' The 'Spelling Book' and 'Assistant' were by Thomas Dilworth, an English schoolmaster at Wapping. The 'Assistant' was a useful work, but has long since disappeared. The 'counterfeit presentment' of the worthy author faced the title-page, and was familiarly known to every schoolboy of my time. The Spelling Book contained a little elementary grammar, in which the English substantives were declined through all the cases (genitive, dative, etc.) of the Latin. But *grammar* was then an unknown study among us. Dilworth's 'Spelling Book,' however, was soon superseded by a greatly improved one, compiled by John Pierce, a respectable teacher of Delaware county, Pennsylvania. This comprised a tolerable English grammar, for that period, and John Forsythe introduced the study into his school with much zeal and earnestness. Intelligent employers were made to comprehend its advantages, and were pleased with the prospect of a hopeful advance in that direction; but dull boys and illiterate parents could not appreciate the benefit. Great boobies often got permission, at home, to evade the study, but they could not get round John Forsythe in that way. They would come into school with this promised indulgence, and loudly announce, 'Daddy says I needn't *larn grammar*; it's no use:' when the energetic response from the desk was, 'I don't care what daddy says. He knows nothing about it; and I say thou shalt learn it!' and so some general notion of the subject was impressed upon the minds even of the stupid; while many of the brighter youths became excellent grammarians.

"In this *Friendly* seminary we were all required to use the *plain language* in conversation, being assured that it was wrong, both morally and grammatically, to say *you* to one person. Our teacher contrived a method of his own for mending our cacology, even while at our noonday sports. He prepared a small piece of board or shingle, which he termed a *paddle*; and whenever a boy was heard uttering bad grammar, he had to take the paddle, step aside, and refrain from play, until he detected some other unlucky urchin trespassing upon syntax; when he was authorized to transfer the badge of interdiction to the last offender, and resume his amusements. It was really curious to observe how critical we soon became, and how much improvement was effected by this whimsical and simple device.

"Pierce's 'Spelling Book' kept its position in our school for several years, but was at length superseded, in the grammatical department, by a useful little volume, prepared by *John Comly*, of Bucks county, Pennsylvania. *Lindley Murray* and others prepared elaborate grammars, which were successively introduced, as our schools improved or created a demand; and so rapidly have the bookmaking competitors in that department multiplied that their name is now legion, and the respective value of their works is known only to experts in the art of teaching.

"Excellent works in *Reading* and *Elocution* are now so abundant and well known in all our respectable seminaries, that they need not to be here enumerated. One of the best and most popular of those works, some half century or more since, was a volume entitled 'The Art of Speaking,' compiled, I think, by a Mr. Rice, in England.

"But, as we have now reached the age of academies, normal institutes, and schools for the people, I presume you will gladly forego a further extension of this prosy narrative, so little calculated to interest a veteran in the great cause of education. I have ever been a sincere friend and advocate of the blessing; but, unfortunately, my acquaintance with it has been mainly limited to a humbling consciousness of my deficiencies in the ennobling attainment.

"Very respectfully,

"WM. DARLINGTON.

"WEST CHESTER, PA., Dec. 21, 1860."

SCHOOLS IN PHILADELPHIA.

The following picture of the internal economy of one of the best schools of Philadelphia, is taken from Watson's "Annals of Philadelphia and Pennsylvania."

"My facetious friend, Lang Syne, has presented a lively picture of the 'schoolmas-

ters' in those days, when 'preceptors,' and 'principals,' and 'professors' were yet unnamed. 'What is now known as 'Friends' Academy,' in Fourth street, was at that time occupied by four different masters. The best room, down-stairs by Robert Proud, Latin master; the one above him, by William Waring, teacher of astronomy and mathematics; the east room, up-stairs, by Jeremiah Paul, and the one below, 'last not least' in our remembrance, by J. Todd, and severe he was.' The State House clock, being at the time visible from the school pavement, gave to the eye full notice when to break off marble and plug top, hastily collect the 'stakes,' and bundle in, pell-mell, to the school-room, where, until the arrival of the 'master of scholars,' John Todd, they were busily employed, every one in finding his place, under the control for the time of a short Irishman, usher, named Jimmy M'Cue. On the entrance of the master, all shuffling of the feet, 'scrouging,' hitting of elbows, and whispering disputes, were hastily adjusted, leaving a silence which might be felt, 'not a mouse stirring.' He, Todd, dressed after the plainest manner of Friends, but of the richest material, with looped cocked hat, was at all times remarkably clean and nice in his person, a man of about sixty years, square built, and well sustained by bone and muscle.

"After an hour, maybe, of quiet time, every thing going smoothly on—no sound, but from the master's voice, while hearing the one standing near him, a dead calm, when suddenly a brisk slap on the ear or face, for something or for nothing, gave 'dreadful note' that an erruption of the lava was now about to take place. Next thing to be seen was 'strap in full play over the head and shoulders of Pilgarlic.' The passion of the master, 'growing by what it fed on,' and wanting elbow room, the chair would be quickly thrust on one side, when, with sudden gripe, he was to be seen dragging his struggling suppliant to the flogging ground, in the centre of the room; having placed his left foot upon the end of a bench, he then, with a patent jerk, peculiar to himself, would have the boy completely horsed across his knee, with his left elbow on the back of his neck, to keep him securely on. In the hurry of the moment he would bring his long pen with him, griped between his strong teeth (visible the while), causing both ends to descend to a parallel with his chin, and adding much to the terror of the scene. His face would assume a deep claret color—his little bob of hair would disengage itself, and stand out, each 'particular hair' as it were, 'up in arms and eager for the fray.' Having his victim thus completely at command, and all useless drapery drawn up to a bunch above the waistband, and the rotundity and the nankeen in the closest affinity possible for them to be, then once more to the 'staring crew' would be exhibited the dexterity of master and strap. By long practice he had arrived at such perfection in the exercise, that, moving in quick time, the fifteen inches of bridle rein (*alias* strap) would be seen after every cut, elevated to a perpendicular above his head; from whence it descended like a flail on the stretched nankeen, leaving 'on the place beneath' a fiery red streak, at every slash. It was customary with him to address the sufferer at intervals, as follows: 'Does it hurt?' 'Oh! yes, master; oh! don't, master.' 'Then I'll make it hurt thee more. 'I'll make thy flesh creep—thou shan't want a warming pan to-night. Intolerable being! Nothing in nature is able to prevail upon thee but my strap.' He had one boy named George Fudge, who usually wore leather breeches, with which he put strap and its master at defiance. He would never acknowledge pain—he would not 'sing out.' Todd seized him one day, and having gone through the evolutions of strapping (as useless, in effect, as if he had been thrashing a flour-bag), almost breathless with rage, he once more appealed to the feelings of the 'reprobate,' by saying: 'Does it not hurt?' The astonishment of the school and the master was completed, on hearing him sing out, 'No! Hurray for leather crackers!' He was thrown off immediately, sprawling on the floor, with the benediction as follows: 'Intolerable being! Get out of my school. Nothing in nature is able to prevail upon thee—not even my strap!'

"'Twas not 'his love of learning was in fault,' so much as the old British system of introducing learning and discipline into the brains of boys and soldiers by dint of punishment. The system of flogging on all occasions in schools, for something or for nothing, being protected by law, gives free play to the passions of the master, which he, for one, exercised with great severity.

The writer has, at this moment, in his memory, a schoolmaster *then* of this city, who, a few years ago, went deliberately out of his school to purchase a cow-skin, with which, on his return, he extinguished his bitter revenge on a boy who had offended him. The age of chivalry preferred ignorance in its sons, to having them subjected to the fear of a pedagogue—believing that a boy who had quailed under the eye of the schoolmaster, would never face the enemy with boldness on the field of battle; which it must be allowed is 'a swing of the pendulum' too far the other way. A good writer says: 'We do not *harden* the wax to receive the impression—wherefore, the teacher seems himself most in need of *correction*—for he, unfit to teach, is making them unfit to be taught!'

"I have been told by an aged gentleman, that in the days of his boyhood, sixty-five years ago, when boys and girls were together, it was a common practice to make the boys strip off their jackets, and loose their trowsers' band, preparatory to hoisting them upon a boy's back so as to get his whipping, with only the linen between the flesh and the strap. The girls too—we pity them—were obliged to take off their stays to receive their floggings with equal sensibility. He named one distinguished lady, *since*, who was so treated among others, in his school. All the teachers then were from England and Ireland, and brought with them the rigorous principles which had before been whipped into themselves at home."

Robert Coram, in a pamphlet devoted in part to a "Plan for the General Establishment of Schools throughout the United States," printed in Wilmington, Delaware, in 1791, characterizes the state of education as follows: "The country schools, through most of the United States, whether we consider the buildings, the teachers, or the regulations, are in every respect completely despicable, wretched, and contemptible. The buildings are in general sorry hovels, neither wind-tight nor water-tight; a few stools serving in the double capacity of bench and desk, and the old leaves of copy books making a miserable substitute for glass windows. The teachers are generally foreigners, shamefully deficient in every qualification necessary to convey instruction to youth, and not seldom addicted to gross vices. Absolute in his own opinion, and proud of introducing what he calls his European method, one calls the first letter of the alphabet, *aw*. The school is modified upon this plan, and the children who are advanced are beat and cuffed to forget the former mode they have been taught, which irritates their minds and retards their progress. The quarter being finished, the children lie idle until another master offers, few remaining in one place more than a quarter. When the next schoolmaster is introduced, he calls the first letter *a*, as in mat; the school undergoes another reform, and is equally vexed and retarded. At his removal a third is introduced, who calls the first letter *kay*. All these blockheads are equally absolute in their own notions, and will by no means suffer the children to pronounce the letter as they were first taught; but every three months the school goes through a reform—error succeeds error, and dunce the second reigns like dunce the first. I will venture to pronounce, that however seaport towns, from local circumstances, may have good schools, the country schools will remain in their present state of despicable wretchedness, unless incorporated with government. * * * The necessity of a reformation in the country schools is too obvious to be insisted on; and the first step to such a reformation will be by turning private schools into public ones. The schools should be public, for several reasons—1st. Because, as has been before said, every citizen has an equal right to subsistence, and ought to have an equal opportunity of acquiring knowledge. 2d. Because public schools are easiest maintained, as the burthen falls upon all the citizens. The man who is too squeamish or lazy to get married, contributes to the support of public schools, as well as the man who is burthened with a large family. But private schools are supported only by heads of families, and by those only while they are interested; for as soon as the children are grown up, their support is withdrawn; which makes the employment so precarious, that men of ability and merit will not submit to the trifling salaries allowed in most country schools, and which, by their partial support, cannot afford a better."

SCHOOL HOLIDAY IN GEORGIA.

We have not been very successful in gathering the printed testimony of the dead, or

the vivid reminiscences of the living, respecting the internal economy of schools, public or family, in any of the Southern states prior to 1800. The following graphic sketch of "the turn out" of the schoolmaster, from Judge Longstreet's "Georgia Scenes," is said to be "literally true:"

"In the good old days of *fescues*, *abisselfas* and *anpersants*,* terms which used to be familiar in this country during the Revolutionary war, and which lingered in some of our country schools for a few years afterward, I visited my friend Captain Griffen, who resided about seven miles to the eastward of Wrightsborough, then in Richmond, but now in Columbia county. I reached the captain's hospitable home on Easter, and was received by him and his good lady with a *Georgia welcome* of 1790.

"The day was consumed in the interchange of news between the captain and myself (though, I confess, it might have been better employed), and the night found us seated round a temporary fire, which the captain's sons had kindled up for the purpose of dyeing eggs. It was a common custom of those days with boys to dye and peck eggs on Easter Sunday, and for a few days afterward. They were colored according to the fancy of the dyer; some yellow, some green, some purple, and some with a variety of colors, borrowed from a piece of calico. They were not unfrequently beautified with a taste and skill which would have extorted a compliment from Hezekiah Niles, if he had seen them a year ago, in the hands of the '*young operatives*,' in some of the northern manufactories. No sooner was the work of dyeing finished, than our 'young operatives' sallied forth to stake the whole proceeds of their '*domestic industry*' upon a peck. Egg was struck against egg, point to point, and the egg that was broken was given up as lost to the owner of the one which came whole from the shock.

"While the boys were busily employed in the manner just mentioned, the captain's youngest son, George, gave us an anecdote highly descriptive of the Yankee and Georgia character, even in their buddings, and at this early date. 'What you think, pa,' said he, 'Zeph Pettibone went and got his uncle Zach to turn him a wooden egg; and he won a whole hatful o' eggs from all us boys 'fore we found it out; but, when we found it out, maybe John Brown didn't smoke him for it, and took away all his eggs, and give 'em back to us boys; and you think he didn't go then and git a guinea egg, and win most as many more, and John Brown would o' give it to him agin if all we boys hadn't said we thought it was fair. I never see such a boy as that Zeph Pettibone in all my life. He don't mind whipping no more 'an nothing at all, if he can win eggs.'

"This anecdote, however, only fell in by accident, for there was an all-absorbing subject which occupied the minds of the boys during the whole evening, of which I could occasionally catch distant hints, in under tones and whispers, but of which I could make nothing, until they were afterward explained by the captain himself. Such as 'I'll be bound Pete Jones and Bill Smith stretches him.' 'By Jockey, soon as they seize him, you'll see me down upon him like a duck upon a June-bug.' 'By the time he touches the ground, he'll think he's got into a hornet's nest,' etc.

"'The boys,' said the captain, as they retired, 'are going to turn out the schoolmaster to-morrow, and you can perceive they think of nothing else. We must go over to the schoolhouse and witness the contest, in order to prevent injury to preceptor or pupils; for, though the master is always, upon such occasions, glad to be turned out, and only struggles long enough to present his patrons a fair apology for giving the children a holiday, which he desires as much as they do, the boys always conceive a holiday gained by a 'turn out' as the sole achievement of their valor; and in their zeal to distinguish themselves upon such memorable occasions, they sometimes become too rough, provoke the master to wrath, and a very serious conflict ensues. To prevent these consequences, to bear witness that the master was *forced* to yield before he would withhold a day of his promised labor from his

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* The *fescue* was a sharpened wire or other instrument used by the preceptor to point out the letters to the children.

Abisselfa is a contraction of the words "a by itself, a." It was usual, when either of the vowels constituted a syllable of a word, to pronounce it, and denote its independent character by the words just mentioned, thus: "a by itself, *a*, c-o-r-n corn, *acorn*;" "e by itself, *e*, v-i-l, *evil*," etc.

The character which stands for the word "*and*" (&) was probably pronounced with the same accompaniment, but in terms borrowed from the Latin language, thus: "& *per se*" (by itself) *and*. Hence, "anpersant."

employers, and to act as a mediator between him and the boys in settling the articles of peace, I always attend; and you must accompany me to-morrow.' I cheerfully promised to do so.

"The captain and I rose before the sun, but the boys had risen and were off to the school-house before the dawn. After an early breakfast, hurried by Mrs. G. for our accommodation, my host and myself took up our line of march toward the school-house. We reached it about half an hour before the master arrived, but not before the boys had completed its fortifications. It was a simple log pen, about twenty feet square, with a doorway cut out of the logs, to which was fitted a rude door, made of clapboards, and swung on wooden hinges. The roof was covered with clapboards also, and retained in their places by heavy logs placed on them. The chimney was built of logs, diminishing in size from the ground to the top, and overspread inside and out with red clay mortar. The classic hut occupied a lovely spot, overshadowed by majestic hickories, towering poplars, and strong-armed oaks. The little plain on which it stood was terminated, at the distance of about fifty paces from its door, by the brow of a hill, which descended rather abruptly to a noble spring that gushed joyously forth among the roots of a stately beech at its foot.

"The boys had strongly fortified the school-house, of which they had taken possession. The door was barricaded with logs, which I should have supposed would have defied the combined powers of the whole school. The chimney, too, was nearly filled with logs of goodly size; and these were the only passways to the interior. I concluded, if a *turn out* was all that was necessary to decide the contest in favor of the boys, they had already gained the victory. They had, however, not as much confidence in their outworks as I had, and therefore had armed themselves with long sticks, not for the purpose of using them upon the master if the battle should come to close quarters, for this was considered unlawful warfare, but for the purpose of guarding their *works* from his approaches, which it was considered perfectly lawful to protect by all manner of jabs and punches through the cracks. From the early assembling of the girls, it was very obvious that they had been let into the conspiracy, though they took no part in the active operations. They would, however, occasionally drop a word of encouragement to the boys, such as 'I wouldn't turn out the master; but if I did turn him out, I'd die before I'd give up.'

"At length Mr. Michael St. John, the schoolmaster made his appearance. Though some of the girls had met him a quarter of a mile from the school-house, and told him all that had happened, he gave signs of sudden astonishment and indignation when he advanced to the door, and was assailed by a whole platoon of sticks from the cracks: 'Why, what does all this mean?' said he, as he approached the captain and myself, with a countenance of two or three varying expressions.

"'Why,' said the captain, 'the boys have turned you out, because you have refused to give them an Easter holiday.'

"'Oh,' returned Michael, 'that's it, is it? Well, I'll see whether their parents are to pay me for letting their children play when they please.' So saying, he advanced to the school-house, and demanded, in a lofty tone, of its inmates, an unconditional surrender.

"'Well, give us a holiday, then,' said twenty little urchins within, 'and we'll let you in.'

"'Open the door of the *academy*'—(Michael would allow nobody to call it a school-house)—'Open the door of the academy this instant,' said Michael, 'or I'll break it down.'

"'Break it down,' said Pete Jones and Bill Smith, 'and we'll break you down.'

"During this colloquy I took a peep into the fortress, to see how the garrison were affected by the parley. The little ones were obviously panic-struck at the first words of command; but their fears were all chased away by the bold determined reply of Pete Jones and Bill Smith, and they raised a whoop of defiance.

"Michael now walked round the academy three times, examining all its weak points with great care. He then paused, reflected for a moment, and wheeled off suddenly toward the woods, as though a bright thought had just struck him. He passed twenty things which I supposed he might be in quest of, such as huge stones, fence rails, portable logs, and the like, without bestowing the least attention upon them. He went to one old log, searched it thoroughly, then to another, then to a hollow stump, peeped into it with great care, then to a

hollow log, into which he looked with equal caution, and so on.

"'What is he after?' inquired I.

"'I'm sure I don't know,' said the captain, 'but the boys do. Don't you notice the breathless silence which prevails in the school-house, and the intense anxiety with which they are eyeing him through the cracks?'

"At this moment Michael had reached a little excavation at the root of a dogwood, and was in the act of putting his hand into it, when a voice from the garrison exclaimed, with most touching pathos, 'Lo'd o' messy, he's found my eggs! boys, let's give up.'

"'I won't give up,' was the reply from many voices at once.

"'Rot your cowardly skin, Zeph Pettibone, you wouldn't give a wooden egg for all the holydays in the world.'

"If these replies did not reconcile Zephaniah to his apprehended loss, it at least silenced his complaints. In the mean time Michael was employed in relieving Zeph's storehouse of its provisions; and, truly, its contents told well for Zeph's skill in egg-pecking. However, Michael took out the eggs with great care, and brought them within a few paces of the schoolhouse, and laid them down with equal care in full view of the besieged. He revisited the places which he had searched, and to which he seemed to have been led by intuition; for from nearly all of them did he draw eggs, in greater or less numbers. These he treated as he had done Zeph's, keeping each pile separate. Having arranged the eggs in double files before the door, he marched between them with an air of triumph, and once more demanded a surrender, under pain of an entire destruction of the garrison's provisions.

"'Break 'em just as quick as you please,' said George Griffin; 'our mothers 'll give us a plenty more, won't they, pa?'

"'I can answer for yours, my son,' said the captain; 'she would rather give up every egg upon the farm than to see you play the coward or traitor to save your property.'

"Michael, finding that he could make no impression upon the fears or the avarice of the boys, determined to carry their fortifications by storm. Accordingly he procured a heavy fence-rail, and commenced the assault upon the door. It soon came to pieces, and the upper logs fell out, leaving a space of about three feet at the top. Michael boldly entered the breach, when, by the articles of war, sticks were thrown aside as no longer lawful weapons. He was resolutely met on the half-demolished rampart by Peter Jones and William Smith, supported by James Griffin. These were the three largest boys in the school; the first about sixteen years of age, the second about fifteen, and the third just eleven. Twice was Michael repulsed by these young champions; but the third effort carried him fairly into the fortress. Hostilities now ceased for a while, and the captain and I, having levelled the remaining logs at the door, followed Michael into the house. A large three inch plank (if it deserve that name, for it was wrought from the half of a tree's trunk entirely with the axe), attached to the logs by means of wooden pins, served the whole school for a writing desk. At a convenient distance below it, and on a line with it, stretched a smooth log, resting upon the logs of the house, which answered for the writers' seat. Michael took his seat upon the desk, placed his feet on the seat, and was sitting very composedly, when with a simultaneous movement, Pete and Bill seized each a leg, and marched off with it in quick time. The consequence is obvious; Michael's head first took the desk, then the seat, and finally the ground (for the house was not floored), with three sonorous thumps of most doleful portent. No sooner did he touch the ground than he was completely buried with boys. The three elder laid themselves across his head, neck and breast, the rest arranging themselves *ad tibi'um*. Michael's equanimity was considerably disturbed by the first thump, became restive with the second, and took flight with the third. His first effort was to disengage his legs, for without them he could not rise, and to lie in his present position was extremely inconvenient and undignified. Accordingly he drew up his right, and kicked at random. This movement laid out about six in various directions upon the floor. Two rose crying: 'Ding his old red-headed skin,' said one of them, 'to go and kick me right in my sore belly, where I fell down and raked it, running after that fellow that cried "school butter."'*

* "I have never been able to satisfy myself clearly as to the literal meaning of these terms. They were

" 'Drot his old snaggle-tooth picture,' said the other, 'to go and hurt my sore toe, where I knocked the nail off going to the spring to fetch a gourd of *warter* for him, and not for myself n'other.'

" 'Hut!' said Captain Griffin, 'young Washingtons mind these trifles! At him again,'

"The name of Washington cured their wounds and dried up their tears in an instant, and they legged him *de novo*. The left leg treated six more as unceremoniously as the right had those just mentioned; but the talismanic name had just fallen upon their ears before the kick, so they were invulnerable. They therefore returned to the attack without loss of time. The struggle seemed to wax hotter and hotter for some time after Michael came to the ground, and he threw the children about in all directions and postures, giving some of them thrusts which would have placed the *ruffle-shirted* little darlings of the present day under the discipline of paregoric and opodeldoc for a week; but these hardy sons of the south seemed not to feel them. As Michael's head grew easy, his limbs, by a natural sympathy, became more quiet, and he offered one day's holiday as the price. The boys demanded a week; but here the captain interposed, and after the common but often unjust custom of arbitrators, split the difference. In this instance the terms were equitable enough, and were immediately acceded to by both parties. Michael rose in a good humor, and the boys were of course. Loud was their talking of their deeds of valor as they retired. One little fellow about seven years old, and about three feet and a half high, jumped up, cracked his feet together, and exclaimed, 'By jingo, Pete Jones, Bill Smith and *me* can hold any *Sinjin* [St. John] that ever trod Georgy grit.' "

considered an unpardonable insult to a country school, and always justified an attack by the whole fraternity upon the person who used them in their hearing. I have known the scholars pursue a traveller two miles to be revenged of the insult. Probably they are a corruption of 'The school's better.' '*Better*' was the term commonly used of old to denote a *superior*, as it sometimes is in our day: 'Wait till your betters are served,' for example. I conjecture, therefore, the expression just alluded to was one of challenge, contempt, and defiance, by which the person who used it avowed himself the *superior* in all respects of the whole school, from the preceptor down. If any one can give a better account of it, I shall be pleased to receive it."

AN OLD FIELD SCHOOL, OR ACADEMY, IN VIRGINIA.

THE experience of one of that class of teachers, who found temporary occupation in teaching the children of one or more families of planters in Virginia and other southern states, will be found in the "Travels of Four Years and a Half in the United States (in 1798, 1799, 1800, 1801 and 1802), by John Davis." Mr. Davis was an Englishman of more than ordinary education and of social address, and while in this country numbered among his friends such men as Aaron Burr, President Jefferson, and other men of high political standing. He was a private tutor in New York, South Carolina and Virginia, and his graphic sketches of men and manners show some of the deficiencies in the means of education which even wealthy planters in the southern states experienced. With letters of introduction from President Jefferson he proceeds to the plantation of a Mr. Ball, and is engaged to teach his and his neighbors' children:

"The following day every farmer came from the neighborhood to the house, who had any children to send to my Academy, for such they did me the honor to term the log-hut in which I was to teach. Each man brought his son, or his daughter, and rejoiced that the day was arrived when their little ones could light their tapers at the torch of knowledge! I was confounded at the encomiums they heaped upon a man whom they had never seen before, and was at a loss what construction to put upon their speech. No price was too great for the services I was to render their children; and they all expressed an eagerness to exchange perishable coin for lasting knowledge. If I would continue with them seven years! only seven years! they would erect for me a brick seminary on a hill not far off; but for the present I was to occupy a log-house, which, however homely, would soon vie with the sublime college of William and Mary, and consign to oblivion the renowned academy in the vicinity of Fauquier Court-House. I thought Englishmen sanguine; but these Virginians were infatuated.

"I now opened what some called an academy,* and others an Old Field School;

* "It is worth the while to describe the academy I occupied on Mr. Ball's plantation. It had one room and a half. It stood on blocks about two feet

and, however it may be thought that content was never felt within the walls of a seminary, I, for my part, experienced an exemption from care, and was not such a fool as to measure the happiness of my condition by what others thought of it.

"It was pleasurable to behold my pupils enter the school over which I presided; for they were not composed only of truant boys, but some of the fairest damsels in the country. Two sisters generally rode on one horse to the school-door, and I was not so great a pedagogue as to refuse them my assistance to dismount from their steeds. A running-footman of the negro tribe, who followed with their food in a basket, took care of the beast; and after being saluted by the young ladies with the courtesies of the morning, I proceeded to instruct them, with gentle exhortations to diligence of study.

"Common books were only designed for common minds. The unconnected lessons of Scot, the tasteless selections of Bingham, the florid harangues of Noah Webster, and the somniferous compilation of Alexander, were either thrown aside, or suffered to gather dust on the shelf; while the charming essays of Goldsmith, and his not less delectable Novel, together with the impressive work of Defoe, and the mild productions of Addison, conspired to enchant the fancy, and kindle a love of reading. The thoughts of these writers became engrafted on the minds, and the combinations of their diction on the language of the pupils.

"Of the boys I cannot speak in very encomiastic terms; but they were perhaps like all other school-boys, that is, more disposed to play truant than enlighten their minds. The most important knowledge to an American, after that of himself, is the geography of his country. I, therefore, put into the hands of my boys a proper book, and initiated them by an attentive reading of the discoveries of the Genoese; I was even so minute as to impress on their minds the man who first descried land on board the ship of Columbus. That man was Roderic Triana, and on my exercising the memory of a boy by asking him the name, he very gravely made answer, Roderic Random.

"Among my male students was a New Jersey gentleman of thirty, whose object was to be initiated in the language of Cicero and Virgil. He had before studied the Latin grammar at an academy school (I use his own words) in his native state; but the academy school being burnt down, his grammar, alas! was lost in the conflagration, and he had neglected the pursuit of literature since the destruction of his book. When I asked him if he did not think it was some Goth who had set fire to his academy school, he made answer, 'So, it is like enough.'

"Mr. Dye did not study Latin to refine his taste, direct his judgment, or enlarge his imagination; but merely that he might be enabled to teach it when he opened school, which was his serious design. He had been bred a carpenter, but he panted for the honors of literature."

"Mr. Davis accounts for his fidelity in teaching more hours than he was required to do by his contract, by his interest in the lessons of one of his female pupils:

"Hence I frequently protracted the studies of the children till one, or half past one o'clock; a practice that did not fail to call forth the exclamations both of the white and the black people. Upon my word, Mr. Ball would say, this gentleman is diligent; and Aunt Patty the negro cook would remark, 'He good cool-mossa that; he not like old Hodgkinson and old Harris, who let the boys out before twelve. He deserve good wages!"

"Having sent the young ladies to the family mansion, I told the boys to break up, and in a few minutes they who had even breathed with circumspection, now gave loose to the most riotous merriment, and betook themselves to the woods, followed by all the dogs on the plantation."

"There was a carpenter on the plantation, whom Mr. Ball had hired by the year,

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and a half above the ground, where there was free access to the hogs, the dogs, and the poultry. It had no ceiling, nor was the roof lathed or plastered, but covered with shingles. Hence, when it rained, like the nephew of old Elwes, I moved my bed (for I slept in my academy) to the most comfortable corner. It had one window, but no glass, nor shutter. In the night, to remedy this, the mulatto wench who waited on me, contrived very ingeniously to place a square board against the window with one hand, and fix the rail of a broken down fence against it with the other. In the morning, when I returned from breakfasting in the 'great big house,' (my scholars being collected,) I gave the rail a forcible kick with my foot, and down tumbled the board with an awful roar. 'Is not *my* window,' said I to Virginia, 'of a very curious construction?' 'Indeed, indeed, sir,' replied my fair disciple, 'I think it is a mighty noisy one.'"

He had tools of all kinds, and the recreation of Mr. Dye, after the labor of study, was to get under the shade of an oak, and make tables, or benches, or stools for the academy. So true is the assertion of Horace, that the cask will always retain the flavor of the liquor with which it is first impregnated.

"'Well, Mr. Dye, what are you doing?'

"'I am making a table for the academy school.'

"'What wood is that?'

"'It is white oak, sir.'

"'What, then you are skilled in trees, you can tell oak from hickory, and ash from fir?'

"'Like enough, sir. (A broad grin.) I ought to know those things; I served my time to it.'

"'*Carpenter.*—I find, sir, Mr. Dye has done with his old trade; he is above employing his hands; he wants work for the brain. Well! larning is a fine thing; there's nothing like larning. I have a son only five years old, that, with proper larning, I should not despair of seeing a member of Congress. He is a boy of genus; he could play on the Jews-harp from only seeing Sambo tune it once.'

"'*Mr. Dye.*—I guess that's Billy; he is a right clever child.'

"'*Carpenter.*—How long, sir, will it take you to learn Mr. Dye Latin?'

"'*Schoolmaster.*—How long, sir, would it take me to ride from Mr. Ball's plantation to the plantation of Mr. Wormley Carter?'

"'*Carpenter.*—Why that, sir, I suppose, would depend upon your horse.'

"'*Schoolmaster.*—Well, then, sir, you solve your own interrogation. But here comes Dick. What has he got in his hand?'

"'*Mr. Dye.*—A mole like enough. Who are you bringing that to, Dick?'

"'*Dick.*—Not to you. You never gave me the taste of a dram since I first know'd you. Worse luck to me; you New Jersey men are close shavers; I believe you would skin a louse. This is a mole. I have brought it for the gentleman who came from beyond sea. He never refuses Dick a dram; I would walk through the wilderness of Kentucky to serve him. Lord! how quiet he keeps his school. It is not now as it was; the boys don't go clack, clack, clack, like 'Squire Pendleton's mill upon Catharpin Run!'

"'*Schoolmaster.*—You have brought that mole, Dick, for me.'

"'*Dick.*—Yes, master, but first let me tell you the history of it. This mole was once a man; see, master (Dick exhibits the mole), it has got hands and feet just like you and me. It was once a man, but so proud, so lofty, so puffed-up, that God, to punish his insolence, condemned him to crawl under the earth.'

"'*Schoolmaster.*—A good fable, and not unhappily moralized. Did you ever hear or read of this before, Mr. Dye?'

"'*Mr. Dye.*—Nay (a broad grin), I am right certain it does not belong to Æsop. I am certain sure Dick did not find it there.'

"'*Dick.*—Find it where? I would not wrong a man of the value of a grain of corn. I came across the mole as I was hoeing the potato-patch. Master, shall I take it to the school-house? If you are fond of birds, I know now for a mocking-bird's nest; I am only afeared those young rogues, the schoolboys, will find out the tree. They play the mischief with every thing, they be full of devilment. I saw Jack Lockhart throw a stone at the old bird, as she was returning to feed her young; and if I had not coaxed him away to look at my young puppies, he would have found out the nest.'

"I had been three months invested in the first executive office of pedagogue, when a cunning old fox of a New Jersey planter (a Mr. Lee) discovered that his eldest boy wrote a better hand than I. Fame is swift-footed; *vires arquirit eundo;* the discovery spread far and wide; and whithersoever I went, I was an object for the hand of scorn to point his slow unmoving finger at, as a schoolmaster that could not write. Virginia gave me for the persecutions I underwent a world of sighs, her swelling heavens rose and with indignation at old Lee and his abettors. But the boys caught spirit from the discovery. I could perceive a mutiny breaking out among them; and had I not in time broke down a few branches from an apple tree before my door, it is probable they would have displayed their gratitude for my instructions by throwing me out of my school-window. But by arguing with one over the shoulders, and another over the back, I maintained with dignity the first executive office of pedagogue.

"I revenged myself amply on old Lee. It was the custom of his son (a lengthy fellow of about twenty) to come to the academy with a couple of huge mastiffs at his heels. Attached to their master (*par nobile*

fratrum) they entered without ceremony Pohoke Academy, bringing with them myriads of fleas, wood-lice, and ticks. Nay, they would often annoy Virginia, by throwing themselves at her feet, and inflaming the choler of a little lap-dog, which I had bought because of his diminutive size, and which Virginia delighted to nurse for me. I could perceive the eye of Virginia rebuke me for suffering the dogs to annoy her; and there lay more peril in her eye than in the jaws of all the mastiffs in Prince William County.

"'Mr. Lee,' said I, 'this is the third time I have told you not to convert the academy into a kennel, and bring your dogs to school.' Lee was mending his pen 'judgmatically.' He made no reply, but smiled.

"I knew old Dick the negro had a bitch, and that his bitch was proud. I walked down to Dick's log-house. Dick was beating flax.

"'Dick,' said I, 'old Farmer Lee has done me much evil—(I don't like the old man myself, master, said Dick)—and his son, repugnant to my express commands, has brought his father's two plantation dogs to the academy. Revenge is sweet—'

"'Right, master,' said Dick. 'I never felt so happy as when I bit off Cuffey's great toe and swallowed it—

"'Do you, Dick,' said I, 'walk past the school-house with your bitch. Lee's dogs will come out after her. Go round with them to your log-house; and when you have once secured them, hang both of them up by the neck.'

"'Leave it to me, master,' said Dick. 'I'll fix the business for you in a few minutes. I have a few fadoms of rope in my house—that will do it.'

"I returned to the academy. The dogs were stretched at their ease on the floor. 'Oh! I am glad you are come,' exclaimed Virginia; 'those great big dogs have quite scared me.'

"In a few minutes Dick passed the door with his slut. Quick from the floor rose Mr. Lee's two dogs, and followed the female. The rest may be supplied by the imagination of the reader. Dick hung up both the dogs to the branch of a pine-tree; old Lee lost the guards to his plantation; the negroes broke open his barn, pilfered his sacks of Indian corn, rode his horses in the night—and thus was I revenged on Alexander the coppersmith.

"Three months had now elapsed, and I was commanded officially to resign my sovereign authority to Mr. Dye, who was in every respect better qualified to discharge its sacred functions. He understood tare and tret, wrote a copper-plate hand, and, balancing himself upon one leg, could flourish angels and corkscrews. I, therefore, gave up the 'academy school' to Mr. Dye, to the joy of the boys, but the sorrow of Virginia."

Whilst schools were thus poorly equipped and the instruction given was thus defective in its methods and meagre in its extent, it becomes of interest to inquire whence such a measure of general intelligence and so many individual cases of attaining to an eminent position in society. This was the result of no single cause alone, but of a variety in combination.

The first of these that may be named, both in its influence upon childhood and upon manhood, was the necessity of a hard fought battle for existence, but relieved by the assurance that victory would be the reward of persistent exertion. Its results were robustness, patience of toil, resoluteness and perseverance in encountering difficulties, and fertility of resources. The rustic lad,—and making the necessary variations, we include the female sex with the representative male,—the rustic lad who had been trained to help his parents from the moment he had acquired strength to steady his steps, to toil on all the same whether the bright sun cheered him or the chill air benumbed his limbs; whether his tasks were varied, pleasant and light, or, on the contrary, he had learned patience, marching beside the patient ox all the long hours of a long spring day, the animals only alternating with others which served as relays; and had been no stranger to such discipline as picking stones in the stubble whilst the sad heavens distilled a drizzly rain, they condensing all their gloom in his soul, but withheld those large and frequent drops which would have been the signal of his release; and among the least severe of whose lessons in acquiring hardihood had been, in gathering the fruits of autumn, to face its frosts without mittens or shoes; this lad found nothing in the difficulties of the school-room to appall him, and storms and deep drifts rather added zest to his daily walks. No unintelligible jargon of the spelling book, no abstruse section in his reader, was an overmatch for his industry.

True, he did not understand all he studied, but he learned to spell and to read and to commit to memory what was assigned him. And when he took his arithmetic, which contained only definitions, rules and examples, although his teacher vouchsafed him little explanation, he had perseverance enough to ponder every dark process till light broke through. And there were instances of boys who worked for consecutive hours and days at problems confessedly some of the most knotty that could be found, till at last their unaided exertions were rewarded with success, which brought more exquisite joy than ever thrilled the finder of a rare gem. These exceptional cases stimulated the more dull, and most became possessed of at least the rudiments of the science, quite sufficient for practical life, or which under the stimulus of necessity became subsequently enlarged to that extent. In manhood no blind adherence to traditional methods was or could be observed. Emergencies were constantly arising which taxed ingenuity to the utmost in devising the fitting expedients to meet them. It was a daily study to make the narrowest means serve the same ends as the amplest. Hard thought was expended without stint upon labor-saving processes, improvements and inventions. Thus was gained a discipline of mind beyond what the higher college mathematics usually imparts, and oftimes a readiness in applying mechanical principles, of which many an engineer trained in the schools is utterly devoid, however prompt he may be in the routine to which he is accustomed.

The family training, aside from the inuring of children to patient industry, contributed greatly to their profiting from their school privileges. To do or not to do was not then left so generally to the child's pleasure. He was made to obey before he had experienced the delight of carrying into effect his own will in opposition to that of others; and thus was formed the habit of unquestioning compliance with the requirements of parents. When the child could understand the subject, he was taught that however irksome at times were the tasks imposed upon him, it was only in virtue of the allotment that man was to eat bread by the sweat of his brow, and that only by a cheerful performance of what was within his power could he make a return for the care he was continually receiving. Thus from a sense of religious and filial obligation the rigor of their early discipline was the more easily sustained. Self-control and a certain measure of self-reliance were results of the discipline of infancy even; and in advancing childhood it was inculcated in the house and in the field, that each must depend upon himself for whatever he was to be and to possess in life. And knowledge, knowledge that was not the mere blind recipient of instruction, intelligent knowledge which perceived relations, and reasoning knowledge which could make the practical application as opportunity served, was set forth as the condition indispensable to render exertion successful. Hence it was a prized privilege to go to school, as well as a pleasant exchange for physical toil, for a brief period, an exchange of work at home for another variety of work in the school-room, not of one manner of busy idleness and mischief for another. Also in many cases the home was itself a school, and either that knowledge was there gained which others acquired at school, or study was further pursued under the guidance of parent, or brother or sister, who by some happy gift of Providence had required little tuition. Often also, winter evenings or other hours, when the labor of one pair of hands might be spared, were passed in the social reading of instructive books.

The listening every seventh day to two discourses, wherein were discussed the deepest theories which can be proposed to man, may be named as an additional item in the answer to our inquiry. The clergymen of that day had received the best education that the country afforded, and were daily cultivating intimacy with the profoundest theologians. Thus they had ever thoughts which they had originated or had made their own to present. And these thoughts were inwardly digested by a goodly number of their hearers, and becoming a part of their being, they too

> "reasoned high
> Of Providence, foreknowledge, will and fate,
> Fixed fate, free will, foreknowledge absolute;"

and if they "found no end," they were not "in wandering mazes lost," for, unlike the lost angels, they ruled their discussions by the infallible word of inspiration. It cannot be said that serious thought then bored, or that the sparkle of the unsubstantial poem chiefly drew, or that triviality was the characteristic of the multitude.

The study of one book, and that the Bible, simple enough in parts to meet the under-

standing of the little child, and of interest enough to absorb his attention, and in other parts of depths which no finite intellect can sound, and everywhere wise above the wisdom of men, and without any alloy of error, was one of the most efficacious means of raising the mass of the people in intelligence, and in educating a few, who made it their constant meditation, to a nicety of discrimination and a profundity of thought truly wonderful. Take as an example one silvery haired man whose memory is cherished with veneration. His school privileges had been less even than the scanty amount of most of his contemporaries, hardly amounting to three winter schools in all. Moreover, weakness of the eyes almost cut him off from reading books and papers throughout his life. But he was able to read daily a few verses, sometimes several chapters, in his large quarto Bible, and when he read aloud, all untaught as he was, he read with a naturalness and gave the sense, so that the hearer marvelled. Comparing scripture with scripture, he had attained to a skill in interpreting which seldom erred. His quickness in detecting a fallacy or in observing a doctrine which harmonized not with the living oracles was surpassed by very few of even the most highly educated of schoolmen. He was exceedingly retiring, but to the few who knew him, his life and his language seemed as correct as the words of that book on which both, with perfect naturalness, without any tinge of formality or quaintness, were modeled. Who will venture to say that this man's education was not incomparably superior to that of him who has delved a whole life in conflicting systems, who has sought to know the thoughts of all reported as great, but who has settled nothing for himself?

The political principles which found their expression in the declaration of independence, and which were a cherished inheritance from the fathers, leading to a general participation in the government of the country, and producing the habit of earnestly debating every question of public concern, had no small share of influence in exciting intensity and energy of mental action. By the fireside, in the field, at the corners of the streets, in the shops and stores, those powers were developed which had further exercise in the town meeting, and carried their possessor to some humble position of trust or authority; and when here trained and shown to be capable of sustaining higher responsibilities, advanced him again, so that he who had forged iron chains, was chosen to fashion the more efficacious restraints of laws; he who had occupied the cobbler's seat, was promoted to the bench of justice; and he who had been wont to rule oxen was thought worthy to govern men.

The newspaper, and the family, and the village library contributed largely to the general intelligence. The weekly paper furnished no small part of the topics of conversation in the family and among neighbors, and, in particular, supplied the pabulum for political discussions. The few books owned or borrowed were carefully read again and again. The small proprietary libraries furnished some of the most valuable histories and the choicest works in belles-lettres. It was not of rare occurrence to find persons who showed familiarity with Rollin, Ferguson, Gibbon, Robertson, and Hume; and sometimes one might even be met, who could give an orderly account of an entire work of these authors; and there were many who could repeat favorite poems, peradventure even the entire *Night Thoughts* of Dr. Young, if that was the chosen *vade mecum*. Even some children of twelve or fifteen years of age,—barefoot boys who had only "noonings" and the time they might gain by manual dexterity in accomplishing their "stents,"—had perused several of the voluminous historians named above. How will such lads compare in mental strength and vigor with children who willingly read nothing but the most exciting tales or the most intellectual pap made toothsome?

The observation of men and of nature, pursued to good advantage where no unbending usages restrained free development of character, no wrappings of conventionalities gave a uniform semblance to all, where the woods and the waters and the inhabitants thereof had only begun to recognize the dominion of man, quickened too by the necessity of turning to account every item of knowledge that could be gained, was an ample equivalent for the more comprehensive speculations of mental philosophy and the scientific nomenclatures and descriptions of natural history to be learned from the mouth of the lecturer.

Finally, those defective schools of the past generation did place the key of knowledge in the hands of the inquisitive; which is nearly all that the schools of the present day

accomplish, or at least is their most valuable result. With reading, writing, and the elements of arithmetic, and the stimulus of necessity and emulation, and perhaps religious principle added, he who felt any of the inspiration of genius, or who became conscious of a talent that had been improved, might advance with a speedier flight or a slower and more toilsome step up the steep ascent to the temple of knowledge, and sit a crowned king on one of her numberless thrones. Books procured and mastered one at a time, moments of leisure seized and improved, oneness of aim and unfaltering perseverance, wrought the result.

It is a plain inference that school education, as the correlate of the professional teacher's labors, usually receives credit to which it is not entitled. As we have elsewhere remarked, with all the agencies for the education and improvement of teachers, the public schools of Europe, with their institutions of government and society, do not turn out such practical and efficient men as our own common schools, acting in concert with our religious, social and political institutions. A boy educated in a district school of New England, taught for a few months in the winter, by a rough, half-educated, but live teacher, who is earning his way by his winter's work in the school-room out of the profession into something which will pay better, and in the summer by a young female, just out of the eldest class of the winter school, and with no other knowledge of teaching than what she may have gathered by observation of the diverse practices of some ten or twelve instructors who must have taught the school under the intermittent and itinerating system which prevails universally in the country districts of New England—a boy thus taught through his school-life, but subjected at home and abroad to the stirring influences of a free press, of town and school district meetings, of constant intercourse with those who are mingling in the world, and in the affairs of public life, and beyond all these influences, subjected early to the wholesome discipline, both moral and intellectual, of taking care of himself, and the affairs of the house and the farm, will have more capacity for business, and exhibit more intellectual activity and versatility than the best scholar who ever graduated from a Prussian school, but whose school-life, and especially the years which immediately follow, are subjected to the depressing and repressing influences of a despotic government, and to a state of society in which every thing is fixed both by law and the iron rule of custom. But this superiority is not due to the school, but is gained in spite of the school.

Now when the causes which conduced to this superiority are less operative and less general, the improvement of schools becomes doubly important. This can be effected only as the moulders of educational institutions intelligently apprehend their proper aim, or, in other words, the due relation of school education to education in its enlarged sense, and as they succeed in leading teachers to a judicious direction of their efforts, and to the employment of methods adapted to the end in view. Omitting the consideration of the last topic suggested as not embraced in the design of this article, we shall have before us a practical aim, in addition to supplying the criterion for estimating the excellences and the defects of the education of the past and the present, if we consider as well as we may the question,

WHAT IS EDUCATION?

To facilitate the attainment of definiteness and accuracy of the conception, we shall attempt to distinguish the several ideas. And,

1. *Formation of character*, which is the most comprehensive of these related ideas, represents the combined result of human, natural and supernatural agencies in fashioning every lineament of the man in every department of his inner being. The human agency embraces parent, brother, sister, nurse, playmate, teacher, chosen companion, casual acquaintance, in short, all of his kind, contemporaries or predecessors, who have directly or indirectly contributed to the moulding of the man. The natural agency is the external world or physical universe, which in its influence upon persons similarly situated varies with their susceptibility. The supernatural agency comprehends that exercise of the sovereign power of the great First Cause, which places the individual in the special condition and relations that attend him on his introduction into existence and throughout his life, with whatever of direct operations there may be upon the mind, experienced consciously or unconsciously, of divine, angelic or demoniacal origin. The estimate of this last influence will de-

pend upon the theological views entertained. Character is raised to its highest elevation when the prevailing motive in the conduct of life is regard for the perfect will of God; and it is then called *piety*. Education viewed actively is not the correlative of formation of character, neither, viewed as a result, is it identical therewith. However we may employ sensible objects or those only conceived of, it proceeds by human agency alone. Whilst the disorganization of the human constitution has proved beyond the ability of mere education to rectify, on the supposition that perfection of character was attained, education might go on indefinitely. Formation of character gives a certain combination of features or qualities; education presents cultivated susceptibilities and stores of gathered treasures. Strictly, education is always immediate. We may employ another, or assist in preparing him, to educate a third person; but if this is all, we are not ourselves with him educators of that person.

2. *The development of the faculties* is the second related idea. Development is the unfolding of something which had existed only in embryo, by exciting its dormant vital energy or inherent force to activity. The result of the development of the mental faculties is *power*, power, intellectual, moral, and voluntary; power of instigating and power of controlling action. When the moral faculty or conscience controls action in all the relations of a man to his fellow-men, *rectitude* or uprightness is the result. It is the function of education to superintend the development of the faculties, accelerating that of some, circumscribing or restraining that of others, and to regulate them in their exercise. Development, even when regulated by education, must fail to give to man perfection of character, for it neither gives nor takes away, and hence original imperfection must remain, though it may be partially concealed. In an unregulated but stimulated development the proportions of what is fair would be outgrown and obscured by all forms of ugliness.

3. *Training*, of which the third related idea is the conception, is directed specifically to the forming of habits. Thus from the earliest mental training there may proceed the habits of obedience, order, neatness, trust, gentleness, kindness, self-denial, &c.; from corporeal training habits of motion, and physical action in general. Education is not, like training, directed exclusively to the forming of habits. This is rather its preliminary work.

4. *Instruction* is the communication of knowledge which may be of value to the recipient, either in itself or as a means to a remoter end. Education gives the discipline which turns knowledge to account. Instruction calls into exercise a sort of passive activity, a reception of facts and a perception of relations as presented. Education trains the pupil to discover relations, and to make deductions from facts, and thus excites an independent activity. Teachers and books instruct when they convey thoughts and explain processes; they educate in so far as they lead the pupil or reader to think for himself and to institute new processes. Instruct a man, and he will become well informed in regard to the subject of the instruction; educate a man, and his mind will be not only furnished, but also disciplined and cultivated in proportion to its capacity and the extent of the process. Precisely the same process may be instruction in one respect and education in another. Often, however, their methods are essentially different, for instruction may simply labor to facilitate to the utmost the acquisition of knowledge, but education, whilst careful to adapt its requirements to the strength of the learner, introducing its severer methods gradually, and never prematurely assigning the abstruser branches of study, only directs the learner how to encounter the difficulties of his path, and leaves him to take every step for himself, aiming to bring him as soon as possible to the condition where he may dispense with all aid. Thus, although instruction and education are inseparable, there may be much instruction where there is very little education, and very little instruction where there is much education. Instruction is limited to what the teacher does; education is measured by what the pupil is rendered competent to perform.

5. *Tuition*, distinctively regarded, has for its end simply advancement in specific branches of study. It is related to education in its restricted sense as a part to a whole. Also, it is objective only.

Education, in its enlarged sense, is the disciplining, cultivating, and furnishing of the mind of man, as a man, and for the particular position which he is to hold. It is thus general and special; general, so far as it seeks to advance man towards the perfection

of his being; special, so far as it is directed to preparation for a particular sphere of activity. Discipline gives trained strength, the ability to exercise developed power at will. Culture brings the mind into the condition, relative to its capacity, to produce what is useful and beautiful and good and true. The furniture of the mind is its general stores. Incidental to the principal objects of education is physical culture. Education regards the body as a casket which must be guarded well, that the contents receive no injury; as a servant to be kept in good condition for the master's benefit.

Education in its restricted sense is that extent of mental discipline, culture and furniture, to be systematically gained under the direction of a teacher, which is requisite to the indefinite improvement of the pupil by himself, or to his independent completion of his preparation for his business in life. It is thus, like education in its enlarged sense, general and special.

This last definition determines the sphere to which the teacher is limited, and which he must occupy as completely as possible. It dictates no uniform course or method. These must be varied to suit the character and circumstances of pupils. It prescribes for each simply the text that is practicable, not every thing which is desirable. Beyond the more fundamental branches of knowledge it makes the furnishing of the mind a secondary end. It utterly forbids the striving to make every pupil the recipient of all the sciences. In the most extended course of study it marks out the pupil's becoming an adequate self-educator as the limit of the teacher's duties, and the aim for the attainment of which he must strive. It countenances no forcing processes, which generate mere hot-bed developments, and prevent all possibility of the solid growth requisite to convert the tender plant into the majestic tree; and least of all, no measure tending to blunt the sensibilities or sour the disposition. It admits that the most valuable part of education is what is superadded to the labors of the teacher, or goes on independently of him, but it requires of him unceasing watchfulness over his pupils, and consummate wisdom and skill in directing their studies and guiding their efforts. Finally, if it permits time and effort to be devoted chiefly to literary attainments, it implies that all intellectual acquisitions must be made subordinate to moral culture.

We will close this chapter by marking some of the successive steps, agencies, and results, in the development of our present system of public elementary education.

1. As has been already remarked, in the reconstruction of civil society which followed the change from colonies to independent states in confederated and afterward national union, the necessity and wisdom of making some provision for the education of children was generally recognized, and in some instances thoroughly and liberally provided for in the fundamental laws.

The constitution of Massachusetts adopted in 1780 has this provision: "Wisdom and knowledge as well as virtue diffused generally among the body of the people, being necessary for the preservation of their rights and liberties, and as these depend on spreading the opportunities and advantages of education in the various parts of the country, and among the different orders of the people, it shall be the duty of legislatures and magistrates in all future periods of this commonwealth, to cherish the interests of literature and the sciences, and all seminaries, especially the University of Cambridge, public schools, and grammar schools in the towns; to encourage private societies and public institutions, rewards and immunities for the promotion of agriculture, arts, sciences, commerce, trades, manufactures, and a natural history of the country; to countenance and inculcate the principles of humanity and general benevolence, public and private charity, industry and frugality, honesty and punctuality in their dealings; sincerity, good humor, and all social affections and generous sentiments among the people." In the revision of the school laws in 1789, it is provided that "towns of fifty families are required to sustain schools wherein children are taught to read and write, and instructed in the English language, arithmetic, orthography, and decent behavior, for a term equal to one school of six months in each year; every town of one hundred families, twelve months; every town of one hundred and fifty families, eighteen months; and every town of two hundred families twelve months, and in addition thereto sustain a school wherein is taught the Latin, Greek and English languages for twelve months in each year." It is also "made the duty of the president, professors and tutors of the University at Cambridge, preceptors and teachers of academies, and

all other instructors of youth, to take diligent care, and to exert their best endeavors to impress on the minds of children and youth committed to their care and instruction the principles of piety, justice and a sacred regard to truth, love to their country, humanity and universal benevolence, sobriety, industry and frugality, chastity, moderation and temperance, and those other virtues which are the ornament of human society, and the basis upon which the republican constitution is structured; and it shall be the duty of such instructors to endeavor to lead those under their care into a particular understanding of the tendency of the before-mentioned virtues, to preserve and perfect a republican constitution, and to secure the blessings of liberty as well as to promote their future happiness, and the tendency of the opposite vices to slavery and ruin."

Vermont in the constitution adopted in 1793 ordains "that a competent number of schools shall be maintained in each town for the convenient instruction of youth, and one or more grammar schools to be incorporated and properly supported in each county," and by subsequent legislation imposed the necessary tax for their support.

New Hampshire in 1789 empowers and requires the selectmen of the several towns to assess an annual tax upon the inhabitants for the support of a school or schools for teaching, reading, writing and arithmetic, and in each county town a grammar school for the purpose of teaching the Greek and Latin languages in addition to the other studies.

Connecticut in 1795, in addition to a special tax for the support of common schools, collectable with the other public taxes, appropriated the avails of the sales of three millions of acres of land belonging to the state and situated in Ohio—since known as the Western Reserve—as a perpetual fund for the same object.

New York in 1795 appropriated $50,000 annually for the purpose of encouraging and maintaining common schools in the several cities and towns, which were required to raise by tax for the same purpose a sum equal to one-half the amount received from the state.

Pennsylvania in the constitution adopted in 1790 ordains "that the legislature shall provide by law for the establishment of schools throughout the state in such manner that the poor may be taught gratis;" "and that the arts and sciences shall be promoted in one or more seminaries of learning." The peculiar feature in the constitution and laws of Pennsylvania providing for the free education of the poor instead of common schools, was unfortunately adopted by New Jersey, Delaware, Maryland, and most of the southern states which had not enjoyed from their first beginnings the inestimable advantages of public schools "good enough for the rich and cheap enough for the poor." Owing to the sparseness of their population, their "peculiar institution," and difficulty of establishing good school habits in any community, public schools have never flourished in the southern and south-western states.

Virginia in 1796 passed a general school law, a portion of the preamble of which is as follows: "Whereas, upon a review of the history of mankind, it seemeth that, however favorable a republican government founded on the principles of equal liberty, justice and order may be to human happiness, no real stability or lasting permanency thereof can be rationally hoped for, if the minds of the citizens be not rendered liberal and humane, and be not fully impressed with the importance of those principles from whence these blessings proceed; with a view, therefore, to lay the first foundations of a system of education which may tend to produce those desirable purposes," etc. Georgia, Kentucky and Tennessee passed school laws with aims as generous as those of the above preamble; but the institutions established were for higher learning and the few, and not for the great masses of the community.

Ohio, Indiana, and all of the states formed out of the north-western and Louisiana territories, as they were admitted into the Union, adopted in their organic and early laws provisions for the appropriation of the funds created out of the educational land grants of Congress, before spoken of, to the support of common schools and colleges, on the plan of the eastern states. But it was soon found that it was not sufficient to pass laws, or even appropriate money liberally for the support of schools; those laws must be efficiently and uniformly administered, and the condition of the schools be brought constantly to the attention of the legislature and the people.

2. New York was the first state to create an officer to look after the operations of the school law, and to advise and assist local

school officers in its administration. The appointment by the legislature in 1813 of Gideon Hawley as superintendent of common schools, and his annual reports to the legislature on the working of the system, constitutes an important era in the history of public instruction in the United States. Other states created the office, but devolved its administration on some other department already burdened with other and dissimilar duties. In 1826 Massachusetts required returns to be made of the condition of the public schools of each town, and in 1836 instituted a state board of education, with a salaried secretary whose business it was made "to collect information of the actual condition and efficiency of the common schools and other means of popular education, and diffuse as widely as possible throughout every part of the state information of the most approved methods of conducting the education of the young, that they may have the best education that common schools can be made to impart." This example was followed by Connecticut in 1838, and in less than ten years this great interest of public instruction, so far as covered by elementary schools, was recognized as a legitimate department of the government, in all the northern and western states.

Under the able and enthusiastic leadership of Horace Mann, the first secretary of the board of education in Massachusetts, the various plans and suggestions which had been proposed for ten or fifteen years previous, for the improvement of common schools, were matured and applied in the most efficient manner. Conventions of teachers, parents and friends of popular education were held for addresses and discussions, in every state, and in almost every county in every state which had appointed either a single officer, or a board with a paid secretary, to look after this interest. The regular and punctual attendance of all the children of a suitable age at school, the advantages of a gradation of schools, of parental visits to the schools, of an association of the teachers for mutual improvement, and the visiting of each other's schools; the evils arising from an improper location, construction and furniture of school houses, from a diversity of text books in the same study, from a multiplicity of studies in the same school, from the neglect of the young pupils and the primary studies, from a constant change of teachers, from the employment of teachers not properly qualified, from severe and unnatural punishments, from the want of suitable apparatus, from the mechanical processes of teaching reading, arithmetic, and other studies, from the neglect of moral education, these and other subjects were discussed in official reports, in the public press, and in professional school journals. Out of the more enlightened and interested public opinion of the country, in neighborhoods, villages, and cities, have resulted wise legislation, efficient organization, vigorous administration, and liberal appropriations, in respect to the material outfit of schools; and with these, but not as rapidly or as widely, have grown up better school attendance, more philosophical arrangement of studies, and improved methods of instruction and discipline.

3. Since 1840 the most marked improvement in the organization, administration and instruction of public schools, has been made in the larger cities of the several states, sometimes under the general school law of the state, but generally under special legislation. With the exception of Boston and a few of the other large cities of New England, the system of public schools was altogether inadequate to the educational wants of large communities. Expensive private schools were the main reliance for the education of the children of professional and wealthy families, while a large number of those whose means were inadequate, were left without provision for their instruction. The establishment of schools of different grades for children of different ages and studies, and especially of primary schools for young children under female teachers, and of a high school for the older boys and girls in studies heretofore pursued only in expensive private schools, has greatly increased the attendance and elevated the character of the public schools of our cities. By means of evening schools which have been established in many of our cities, the defective education of many young men has been remedied, and their various employments have been converted into more efficient instruments of self-culture.

4. With the improvement of schools in cities and large villages, the establishment of normal schools, teachers' associations, teachers' institutes, and educational journals, and state and local supervision, the country schools throughout the northern and western states are now in a good and hopeful condition.

CHAPTER IV.

ACADEMIES, HIGH SCHOOLS, AND OTHER INSTITUTIONS OF SECONDARY EDUCATION.

THE first public schools of the American colonies were the free endowed grammar schools and subscription grammar schools; schools for secondary education. Public primary or elementary common schools were of later date, both in chronological order, and as being a logical result of their predecessors of higher grade.

The first school laws, those of Connecticut and Massachusetts, which were subsequent to the establishment by individuals or towns of the classes of schools they referred to, recognized all three grades of educational institutions, both what are at present termed common or elementary, and also secondary or superior; that is to say, common or neighborhood schools, grammar schools, and colleges.

The class of secondary schools, since the very earliest period of their establishment, has been far less cherished and supported, either by public opinion or by legal provisions, than either of the other two classes. Almost universally, the academy, the endowed school, the grammar school, has been wholly left to the support of those wealthier or more learned classes who have been tacitly assumed to have the only use for them; and where any state assistance has been extended to them, it has usually been in the exceptional form of individual acts of incorporation or individual grants of money or land.

It may be observed that such a co-equal public recognition, if extended to the class of secondary schools, would at once produce a definite and important result, in throwing probably half of what may be termed the present secondary course of study back within the course of the elementary grade of schools, and also in bringing back a large number of what are termed colleges into their appropriate grade of secondary institutions.

The noticeable and important fact is moreover thus brought out, that public opinion in the United States has never, up to the present time, demanded or recognized any universal privilege of education beyond that in the merest rudiments of it.

This neglect has of course caused the existing almost entire deficiency of recorded statistics of schools of this class. Such statistics are not accessible at all, except in the single state of New York, and even there, only from such secondary institutions as are obliged to furnish them as a condition of their receipt of a portion of the literature fund. This remark is not applicable to the grade of schools known as public high schools, for boys or girls, or both, in several of our larger cities; but these schools, few in number and of modern origin, are not so much the outgrowth of popular feeling, as the creations of a few intelligent friends of public education, in advance of any general demand for this class of institutions. Although not recognized generally as part of our systems of public instruction, schools of the former class have increased rapidly, and now exist in almost every village in the land, and their aggregate number in 1850, according to the census of that year, will be seen in the table on page 451.

The progress of this class of schools, in respect to studies, books, and equipment generally, and methods of instruction and discipline, can be readily measured by any one who will look into the best academy or public high school in his neighborhood, and then read the following communications—the first by the Hon. Josiah Quincy, respecting one of the earliest institutions of the class known as academies; and the other two by eminent public men, respecting the public schools, and particularly the Latin school of Boston, as it was prior to or about the beginning of the present century, and at that time pronounced "the best on the American continent."

"MR. BARNARD: *Dear Sir*—You ask briefly the position of Phillips Academy as to studies, text-books, methods, and discipline. That academy was founded in the year 1778, in the midst of the war of the Revolution, by the united contributions of three brothers—Samuel, John, and William Phillips—all of them men of property according to the scale of that day, and all of a liberal spirit toward every object, religious, moral, or educational. But the real author and instigator of that foundation was the only son of the first of the above-named, who was known during the early period of his life by the name of *Samuel Phillips, Junior*. He was, during his whole life, one of the most distinguished, exemplary, and popular men in Massachusetts; active, spirited, influential, and ready, and a leader in every good work;

and he had the control of the hearts of his father and two uncles, and was undoubtedly the influential spirit giving vitality to the plan of that institution. There was only one academy in the state at that time—Dummer Academy at Newbury—which, although it had sent forth many good scholars, was then going to decay; and the beautiful and commanding site in the south parish of Andover which that institution now occupies, was unquestionably one of the causes of the idea of the institution as well as of its locality. Eliphalet Pearson had been educated at Dummer Academy, was distinguished for his scholarship and zeal in the cause of classical learning; Samuel Phillips, jr., had formed an intimacy with him at college, though in different classes, and entertained a high opinion both of his literary attainments and spirit of discipline. Phillips Academy was projected with reference to his becoming its first master; and his aid was joined with that of his friend Phillips in forming the constitution of the academy.

"The time of its foundation was unquestionably most inauspicious to its success, but young Phillips was of a spirit that quailed before no obstacles. It was designed to be a model institution of the kind, and no pains were omitted to secure its success; and notwithstanding the uncertainties of the political aspect of the time and the perpetually increasing depreciation of paper money, it was sustained in great usefulness and prosperity. I was sent to that academy within a month after its opening, in May, 1778, being the seventh admission on its catalogue. I had just then entered upon my seventh year, and was thrust at once into my Latin at a period of life when noun, pronoun, and participle were terms of mysterious meaning which all the explanations of my grammars and my masters for a long time vainly attempted to make me comprehend. But the laws of the school were imperious. They had no regard for my age, and I was for years submitted to the studies and discipline of the seminary, which, though I could repeat the former, through want of comprehension of their meaning, I could not possibly understand. I was sent to the academy two years at least before I ought to have been. But William Phillips was my grandfather; it was deemed desirable that the founders of the academy should show confidence in its advantages; I was, therefore, sent at once, upon its first opening, and I have always regarded the severe discipline to which I was subjected, in consequence of the inadequacy of my years to my studies, as a humble contribution toward the success of the academy.

"The course of studies and text-books I do not believe I can from memory exactly recapitulate; I cannot, however, be far out of the way in stating that 'Cheever's Accidence' was our first book; the second, 'Corderius;' the third, 'Nepos;' then, if I mistake not, came 'Virgil.' There may have been some intermediate author which has escaped my memory, but besides *Virgil* I have no recollection of any higher author.

"Our grammar was 'Ward's,' in which all the rules and explanations are in Latin, and we were drilled sedulously in writing this language far enough to get into the university. Our studies in Greek were very slight and superficial. Gloucester's Greek Grammar was our guide in that language, and a thorough ability to construe the four Gospels was all required of us to enter the college.

"These are the best answers I can give to your inquiries on the subject of 'studies and text-books,' but I am not confident that my memory serves me with exactness. Our preparation was limited enough, but sufficient for the poverty and distracted state of the period.

"Of 'methods and discipline,' for which you inquire, I can only say that the former was strict and exact, and the latter severe. Pearson was a convert to thorough discipline; monitors kept an account of all of a student's failures, idleness, inattention, whispering, and like deviations from order, and at the end of the week were bestowed substantial rewards for such self-indulgences, distributed upon the head and hand with no lack of strength or fidelity.

"In that day arithmetic was begun at the university. The degree of preparation for college and the amount of the studies within it are not worthy of remembrance when compared with the means of acquirement now presented to the aspiring student.

"Your other inquiries I should be happy to make the subject of reply, but long cessation of familiarity with the objects to which they relate makes me dubious of my power to add any thing important to their history. My knowledge of the common schools of Boston was obtained only during the vacations of the academy, and had chief refer-

ence to improvement in my writing. Their advantages were few enough and humble enough; the education of females very slight, and limited to reading, writing, and the earlier branches of arithmetic.

"The interests of schools and of education were, thirty years ago, subjects of my thought and writing; but the lapse of time and the interposition of other objects and new duties deprive me of the power of aiding your researches on these subjects, which are, however, easily and far better satisfied by the active men of the day. Wishing you all success in these wise and noble pursuits,

"I am, very truly,

"Your friend and servant,

"JOSIAH QUINCY."

"BOSTON, Dec. 1st, 1860."

The following "Memorandum of an eminent clergyman, who was educated in the best schools of Boston just before the Revolution," we copy from a volume of the "Massachusetts Common School Journal," vol. xii., pp. 311, 312. The notes are by the editor of the Journal, Wm. B. Fowle:

"At the age of six and a half years, I was sent to Master John Lovell's Latin school. The only requirement was reading well; but, though fully qualified, I was sent away to Master Griffith, a private teacher, to learn to read, write and spell. I learned the English Grammar in Dilworth's Spelling Book by heart. Griffith traced letters with a pencil, and the pupils inked them.

"Entered Lovell's school at seven years. Lovell was a tyrant, and his system one of terror. Trouncing* was common in the school. Dr. Cooper was one of his early scholars, and he told Dr. Jackson, the minister of Brookline, that he had dreams of school till he died. The boys were so afraid they could not study. Sam. Bradford, afterward sheriff, pronounced the *P* in *Ptolemy*, and the younger Lovell rapped him over the head with a heavy ferule.*

"We studied Latin from 8 o'clock till 11, and from 1 till dark. After one or two years, I went to the town school, to Master Holbrook, at the corner of West street, to learn to write; and to Master Proctor, on Pemberton's Hill, in the south-east part of Scollay's Building. My second, third, and fourth year, I wrote there, and did nothing else. The English boys alone were taught to make pens. Griffith was gentle, but his being a private teacher accounts for it.

"The course of study was, grammar; Esop, with a translation; Clarke's Introduction to writing Latin; Eutropius, with a translation; Corderius; Ovid's Metamorphoses; Virgil's Georgics; Æneid; Cæsar; Cicero. In the sixth year I began Greek, and for the first time attempted English composition, by translating Cæsar's Commentaries. The master allowed us to read poetical translations, such as Trappe's and Dryden's Virgil. I was half way through Virgil when I began Greek with Ward's Greek Grammar.

"After Cheever's Latin Accidence, we took Ward's Lily's Latin Grammer. After the Greek Grammar, we read the Greek Testament, and were allowed to use Beza's Latin translation. Then came Homer's Iliad, five or six books, using Clarke's translation with notes, and this was all my Greek education at school. Then we took Horace, and composed Latin verses, using the Gradus ad Parnassum. Daniel Jones was the first Latin scholar in 1771 or 1772,

* "Trouncing was performed by stripping the boy, mounting him on another's back, and whipping him with birch rods, before the whole school. James Lovell, the grandson of John, once related to us the following anecdote, which shows the *utility* of corporal punishment! It seems that a boy had played truant, and Master John had publicly declared that the offender should be trounced. When such a sentence was pronounced, it was understood that the other boys might seize the criminal, and take him to school by force. The culprit was soon seized by one party, and hurried to the master, who inflicted the punishment without delay. On his way home, the culprit met another party, who cried out, 'Ah, John Brown,' or whatever his name was, 'you'll get it when you go to school!' 'No, I shan't,' said the victorious boy, who felt that he had got the start of them, 'No, I shan't, for *I've got it*,' and, as he said this, he slapped his hand upon the part that had paid the penalty, thus, as the poet says, 'suiting the acting to the word.'"

* "We saw this done by another Boston teacher, about thirty years ago, and when we remonstrated with him upon the danger of inflicting such a blow, upon such a spot, 'O, the caitiffs,' said he, 'it is good for them!' About the same time, another teacher, who used to strike his pupils upon the hand so that the marks and bruises were visible, was waited upon by a committee of mothers, who lived near the school, and had been annoyed by the outcries of the sufferers. The teacher promised not to strike the boys any more on the *hand*, and the women went away satisfied. But, instead of inflicting blows upon the hand, he inflicted them upon the soles of the feet, and made the punishment more severe."

and he was brother to Thomas Kilby Jones, who was no scholar, though a distinguished merchant afterward.

"I entered college at the age of fourteen years and three months, and was equal in Latin and Greek to the best in the senior class. Xenophon and Sallust were the only books used in college that I had not studied. I went to the private school from 11 to 12 A. M., and to the public from 3 to 5 P. M.

"The last two years of my school life, nobody taught English Grammar or Geography, but Col. Joseph Ward (son of Deacon Joseph Ward, of Newton, West Parish, blacksmith,) who was self-taught, and set up a school in Boston. He became aid to General Ward when the war commenced, and did not teach after the war.

"I never saw a map, except in Cæsar's Commentaries, and did not know what that meant. Our class studied Lowth's English Grammar at college. At Master Proctor's school, reading and writing were taught in the same room, to girls and boys, from 7 to 14 years of age, and the Bible was the only reading book. Dilworth's Spelling Book was used, and the New England Primer. The master set sums in our MSS. but did not go farther than the Rule of Three.

"Master Griffith was a thin man, and wore a wig, as did Masters Lovell and Proctor, but they wore a cap when not in full dress. James Lovell was so beaten by his grandfather John, that James the father rose and said, 'Sir, you have flogged that boy enough.' The boy went off determined to leave school, and go to Master Proctor's; but he met one of Master Proctor's boys, who asked whither he was going, and when informed, warned him not to go, for he would fare worse."

Hon. Edward Everett, in an address at the Annual School Festival in Faneuil Hall in 1852, gives the following account of the educational advantages he enjoyed in early life:—

"It was fifty-two years last April since I began, at the age of nine years, to attend the reading and writing schools in North Bennett street. The reading school was under Master Little, (for 'Young America' had not yet repudiated that title,) and the writing school was kept by Master Tileston. Master Little, in spite of his name, was a giant in stature—six feet four, at least—and somewhat wedded to the past. He struggled earnestly against the change then taking place in the pronunciation of *u*, and insisted on saying *mondument* and *natur*. But I acquired, under his tuition, what was thought in those days a very tolerable knowledge of Lindley Murray's abridgment of English grammar, and at the end of the year could parse almost any sentence in the 'American Preceptor.' Master Tileston was a writing master of the old school. He set the copies himself, and taught that beautiful old Boston handwriting, which, if I do not mistake, has, in the march of innovation, (which is not always the same thing as improvement,) been changed very little for the better. Master Tileston was advanced in years, and had found a qualification for his calling as a writing master, in what might have seemed at first to threaten to be an obstruction. The fingers of his right hand had been contracted and stiffened in early life, by a burn, but were fixed in just the position to hold a pen and a penknife—and nothing else. As they were also considerably indurated, they served as a convenient instrument of discipline. A copy badly written, or a blotted page, was sometimes visited with an infliction which would have done no discredit to the beak of a bald eagle. His long, deep desk was a perfect curiosity-shop of confiscated balls, tops, penknives, marbles and Jews-harps—the accumulation of forty years. I desire, however, to speak of him with gratitude, for he put me on the track of an acquisition which has been extremely useful to me in after life—that of a plain, legible hand. I remained at these schools about sixteen months, and had the good fortune in 1804 to receive the Franklin medal in the English department. After an interval of about a year, during which I attended a private school kept by Mr. Ezekiel Webster, of New Hampshire, and on an occasion of his absence, by his ever memorable brother, Daniel Webster, at that time a student of law in Boston, I went to the Latin school, then slowly emerging from a state of extreme depression. It was kept in School street, where the Horticultural Hall now stands. The standard of scholastic attainment was certainly not higher than that of material comfort in those days. We read pretty much the same books—or of the same class—in Latin and Greek, as are read now, but in a very cursory and superficial manner. There was no attention paid to the philoso-

ply of the languages—to the deduction of words from their radical elements—to the niceties of construction—still less to prosody. I never made a hexameter or pentameter verse, till, years afterward, I had a son at school in London, who occasionally required a little aid in that way. The subsidiary and illustrative branches were wholly unknown in the Latin school in 1805. Such a thing as a school library, a book of reference, a critical edition of a classic, a map, a blackboard, an engraving of an ancient building, or a copy of a work of ancient art, such as now adorn the walls of our schools, was as little known as the electric telegraph. If our children, who possess all these appliances and aids to learning, do not greatly excel their parents, they will be much to blame."

CHAPTER V.

COLLEGES.

THE colleges of the United States were, at the close of the Revolutionary war, seven in number. They had been founded with the design of providing for the new commonwealths the means of a training for the young men, substantially similar to that afforded by the universities at home. Their course of study was four years in length, and was at first decidedly theological in character, and subsequently more and more secularized. The average age of those entering was somewhat less than now; and they conferred, as at present, degrees in arts in course, and honorary ones in arts, law, and divinity.

With the growth of the United States they have rapidly increased in number, being supported, beyond the receipts for tuition, either by endowments raised for each among the denomination to which it belongs, or by the proceeds of state gifts of lands or money. The number of this class of institutions incorporated with power to confer academic honors, exceeds two hundred. The length of their course of study remains the same, and indeed this is the case in all their essential characteristics. Although there has been a gradual elevation of the standard of acquirements made requisite for entrance, this preliminary examination has not been sufficiently exacting and uniform. As their funds and the number of their students have enlarged, they have shown a tendency, not to increase the length and completeness of their course of study, but rather to multiply the number of studies attempted to be taught, by adding them to the undergraduate course; and in a few instances also to annex special schools in one or another department, such as law, medicine, theology, and the application of science to industrial occupations.

Mr. Everett gives the following picture of college life at Harvard as it was fifty years ago:—

"But short as the time is since I entered college (only half as long as that which has elapsed since the close of the seven years' war), it has made me the witness of wonderful changes, both materially and intellectually, in all that concerns our *Alma Mater*. Let me sketch you the outlines of the picture, fresh to my mind's eye as the image in the *camera*, which the precincts of the college exhibited in 1807. The Common was then uninclosed. It was not so much traversed by roads in all directions; it was at once all road and no road at all,—a waste of mud and of dust, according to the season, without grass, trees, or fences. As to the streets in those days, the 'Appian Way' existed then as now; and I must allow that it bore the same resemblance then as now to the *Regina Viarum*, by which the consuls and proconsuls of Rome went forth to the conquest of Epirus, Macedonia, and the East.

"As to public buildings in the neighborhood of the university, with the exception of the Episcopal church, no one of the churches now standing was then in existence. The old parish church has disappeared, with its square pews, and galleries from which you might almost jump into the pulpit. It occupied a portion of the space between Dane Hall and the old Presidential House. I planted a row of elm and oak trees a few years ago on the spot where it stood, for which, if for nothing else, I hope to be kindly remembered by posterity. The wooden building now used as a gymnasium, and, I believe, for some other purposes, then stood where Lyceum Hall now stands. It was the county court-house; and there I often heard the voice of the venerable Chief Justice Parsons. Graduates' Hall did not exist; but on a part of the site, and behind the beautiful linden trees still flourishing, was an old black wooden house, the residence of the professor of mathematics. A little further to the north, and just at the corner of Church street, which was not then opened, stood what was dignified in the annual col-

lege catalogue (which was printed on one side of a sheet of paper, and was a novelty) as 'The College House.' The cellar is still visible. By the students this edifice was disrespectfully called 'Wiswall's Den,' or, for brevity, 'the Den.' I lived in it in my freshman year. Whence the name of 'Wiswall's Den' was derived, I hardly dare say; there was something worse than 'old fogy' about it. There was a dismal tradition that, at some former period, it had been the scene of a murder. A brutal husband had dragged his wife by the hair up and down the stairs, and then killed her. On the anniversary of the murder—and what day that was no one knew—there were sights and sounds—flitting garments draggled in blood, plaintive screams, *stridor ferri tractæque catenæ*—enough to appall the stoutest sophomore. But, for myself, I can truly say, that I got through my freshman year without having seen the ghost of Mr. Wiswall or his lamented lady. I was not, however, sorry when the twelvemonth was up, and I was transferred to the light, airy, well-ventilated room, No. 20 Hollis; being the inner room, ground-floor, north entry of that ancient and respectable edifice."

Tables II., III., and IV., exhibit the number, date of foundation, and statistics of our American colleges in several important particulars.

CHAPTER VI.

PROFESSIONAL, SCIENTIFIC, AND SPECIAL SCHOOLS.

As the body of human knowledge increased in extent, and filled out in detail, it subdivided by a natural process into a greater and greater number of sciences, as did the industrial side of life into a greater and greater number of employments. A subdivision and increase in the number of schools, preparatory to the business of life, naturally accompanied this process.

The colleges of the United States, according to this law of development, were in their early day designed primarily to train future clergymen, and secondarily to train those intending to enter the public service. For a long time college graduates had no means of enjoying further instruction in either of the then recognized learned professions, but by residing near or in the family of some eminent clergyman, lawyer, or physician, acting as his assistant and receiving his instructions. Then, when they considered themselves fit, or an invitation came, they took their place in the ranks of their profession. Gradually the necessity of special opportunities of instruction in the principles, and their diverse and complicated applications, led to the establishment of schools of theology, medicine, and law; and still later, of special courses of instruction, and finally, of special schools for the practical chemist, geologist, civil and military engineer, agriculturist and teacher. This department of education is not yet aided systematically in any state, and is hardly recognized by a majority of the states in their systems of public instruction. Most of this class of institutions have been established by denominational or professional associations, or by the liberality of individuals in advance of or as the inducement of legislative aid.

CHAPTER VII.

THEOLOGICAL SCHOOLS.

The future clergyman, in the American colonies, had already studied theology in his college course. It was probably common for graduates to serve what may be well enough termed an apprenticeship under some eminent clergyman, after leaving college. During the first half of the eighteenth century, the custom grew up of subjecting the candidate for the ministry to examination by a number of ministers, and licensing him to preach as candidate. Dr. Bellamy first introduced at his house at Bethlem, Connecticut, the plan of giving something like a regular course of instruction to students in theology, a little later. The practice became quite general, and was confirmed by the gradual elimination of its theological character from the course of study in the colleges.

The first separate theological school in the United States was that at Andover, founded and opened in 1807. The thorough three years' course of study here established soon did away with the comparatively inefficient and superficial apprenticeship scheme, which afforded a professional training of twelve, six, or even only three months.

Of previous departmental or imperfect provisions for specific ministerial training, should be mentioned the academy known as "Log College," of Rev. William Tennent, at

Neshaminy, Bucks county, Pa., opened about 1728; the preparatory school opened by Rev. John Smith in the west of Pennsylvania in 1778, afterward under Rev. J. Anderson, D. D.; William and Mary College, which included a professorship of divinity in 1693; the foundation of the Hollis professorship of divinity at Harvard College in 1721; and that of the Livingston professorship of divinity at Yale College in 1746.

The table, altered into chronological succession from the American Almanac, 1861, gives the growth of this class of special schools.

CHAPTER VIII.

LAW SCHOOLS.

THE professional education of colonial lawyers was equally unscientific, with the exception of the few who obtained a legal education at the Middle or Inner Temple in London, those inns of court being the favorite resorts of American students. Law, indeed, was then scarcely considered a liberal science in this country, and the profession was in more than one instance discouraged or actually forbidden by colonial constitutions or laws. Thus, in 1660, Virginia, by her house of burgesses, voted for "the total ejection of mercenary attorneys;" Massachusetts, in 1663, prohibited "usual and common attorneys in any inferior court," from being members of the legislature; and Locke's constitution for Carolina permitted "no one to plead another man's cause." The only professional training between the college course and actual practice was in the office of some practitioner already established, where the aspirant served for an indefinite period as an attorney's clerk, usually learning to draw instruments, and obtaining a desultory knowledge of forms, technics and special pleading, but very seldom pursuing any regulated course of study or systematically mastering his subject.

The first separate institution for legal instruction was the celebrated law school at Litchfield, Connecticut, established by Judge Reeve in 1784, taught by him alone until 1798, then together with Judge Gould until a little before Judge Reeve's death in 1823, and afterward by Judge Gould alone until 1827. Seven hundred and fifty students in all studied law in this school; who, scattered over the whole country, carried with them and instilled into the profession at large the idea of a special and systematic training for the practice of law.

We append a table, altered from the American Almanac for 1861, of the existing law schools or collegiate departments in the United States, in the order of their foundation. It should, however, be observed that some legal studies were included in the original scheme of William and Mary College, founded 1693, and the law course became of some positive value by improvements about 1730. Also, that a law professorship was founded in the College of Philadelphia in 1790; a professor of law appointed at Yale College in 1801; and the Royal Professorship of Law at Harvard, founded in 1815.

CHAPTER IX.

MEDICAL SCHOOLS.

MEDICAL schools are of quite recent date; and the training of the young physician was of a very irregular character. During the colonial period, degrees of Doctor of Medicine were possessed by very few practising physicians, who had studied at Edinburgh, Leyden, or other European schools. The few eminent physicians who were trained exclusively in the colonies, were to a great extent followers of a natural gift and tendency, which went far to supply their lack of school learning. Young men proposing to become physicians, practised in the offices and under the instruction of established physicians. Down to the middle of the 18th century, it was the frequent practice, in Connecticut, at least, to obtain a formal license from the general court, which was commonly granted on petition of the aspirant, reinforced by testimonials from the freemen of his town, the town officers, or practising physicians. Sometimes the only credentials of the beginner, were the certificate of the physician with whom he had studied. After college courses of medical lectures were established, a license from the faculty was given, which served instead of the subsequent diploma.

The earliest collegiate medical department in the United States was that of the University of Pennsylvania in 1765. Dr. Shippen had lectured on anatomy in 1762.

We add a chronological table, altered from the American Almanac for 1861, of the medical schools of the United States.

CHAPTER X.

MILITARY AND NAVAL SCHOOLS.

THE experience of the Revolutionary war occasioned a very general conviction among the officers of the American army, of the necessity for such a provision for the military education of native officers as would relieve the United States from a dependence upon professionally trained soldiers of foreign birth. The idea of a military school of some kind, to be connected with each United States arsenal, was entertained at the close of the war among the officers.

In the spring of 1783, General Washington requested from a number of leading officers, statements of their views on all subjects connected with the peace establishment of the United States army. In reply to this request, Colonel Timothy Pickering, then quartermaster-general, drew up an able and interesting memoir, which contains, it is believed, the first suggestion of a single central government military academy, and he also suggested West Point as a proper location for it.

President Washington's annual address to Congress of December 3, 1793, asks "whether a material feature in the improvement of a system of national defence ought not to be to afford an opportunity for the study of those branches of the military art, which can scarcely ever be attained by practice alone."

An act of Congress of May 9, 1794, authorized a corps of four battalions of artillerists and engineers, to each of which were to be attached eight cadets. This was the first introduction into the military service of the United States of this term, which may be defined to signify a grade of officers between the highest non-commissioned officer, a sergeant, and the lowest commissioned one, an ensign. For the use of this corps and cadets, the secretary of war, Colonel Pickering, was authorized to procure the necessary books and apparatus. The secretary, in 1796, reports that this organization is important, and should be as stationary as practicable, with a view to instruction.

President Washington's last annual speech to Congress, December, 1796, again urged strongly the establishment of a military academy. In April, 1798, the corps of artillerists and engineers was increased by an additional regiment, and the number of cadets enlarged to fifty-six. In July following, four teachers were by Congress authorized to be employed in that regiment for instruction in science and art. Some officers and men were collected at West Point, and a sort of military school opened, which, however, acted with little efficiency, owing to the want of preparatory training, and of organization.

Secretary of War McHenry, in a report on the organization of the army, made during the expectation of a war with France, dated December 24, 1798, lamented the want of engineers and artillerists trained at home. In January, 1800, the same officer laid before the President, who transmitted it to Congress, a plan for establishing a military academy. After referring to the imperfect steps already taken in this direction, he proceeds to suggest that the proposed academy shall consist of a "fundamental school," to instruct in such departments of science as are necessary in common in all the arms of the military force; and three special schools, one of engineers and artillerists, one of cavalry and infantry, and one of the navy. The institution was to be in charge of a director-general, four directors, twelve professors, and nine other instructors. This school, so far as Secretary McHenry recommended its immediate establishment, was to accommodate annual classes of one hundred pupils each, for courses of four and five years.

The Military Academy at West Point, according to Colonel Williams' report in 1808, was first opened in 1801, as a "mathematical school for the few cadets that were then in service," and under a private citizen. In 1802, an act of Congress separated the artillerists and engineers, distributing the cadets of the former class among the twenty companies of that arm, and constituted the engineers the Military Academy, making it consist of seven officers and ten cadets.

The operations of the school continued to be deficient in order and efficiency for some years, still for want of proper and energetic administration, and a well adjusted course of study. In 1812, it was much enlarged, and its organization quite changed. The period from 1817 to 1824, however, during which a thorough course of theoretical and practical studies, properly adapted to the military profession, was for the first time introduced, marks the establishment of the academy as a military and scientific school of high grade and value.

The academy, in 1860, was organized under a superintendent, who is commandant of the

post, and a corps of forty-six instructors and officers. Its course of study is of five years, and is intended to train the pupils in military science and art as applicable to all arms of the service. The number of pupils is by law fixed at one from each congressional and territorial representative district, together with ten appointed at large; being at present a total limit of 252.

OTHER MILITARY SCHOOLS.

In 1839, the state of Virginia established in connection with Washington College, at Lexington, Va., the "Virginia Military Institute," intended to instruct young men in tactics and civil engineering. There were in 1858 eleven instructors. The pupils are divided into state cadets and pay cadets; the latter class paying their expenses, and the former supported out of a state appropriation of $6000 a year, and an additional sum of $1,500 from the literary fund.

Two similar schools were established by South Carolina in 1842—the Arsenal Academy at Columbia, and the Citadel Academy at Charleston. These contemplate a similar course, and are aided by a state appropriation, which was in 1859 $30,000. A military academy at Lexington, Kentucky, is aided by the state, and is under a board of nine members, appointed by the state. Louisiana has a military school of the same character. These institutions have been found well adapted to the character of southern pupils, and are flourishing and useful.

Of the various private schools which have or have had an infusion of the military element, one of the most prominent was that of Captain Alden Partridge. Captain Partridge was a native of Norwich, Vt., where he died, aged 70, in 1854. He was a military instructor during nearly fifty years, being principal of the West Point Academy from 1812 to 1816; and afterward conducting a private military school, successively at Norwich, Vt., Middletown, Ct., Portsmouth, Va., and Brandywine Springs, Del., nearly or quite down to the time of his death.

A number of private schools and other institutions in various parts of the country have adopted more or less of a military organization, as a means of securing physical exercise, amusement, and mental and moral discipline. A military drill, for instance, is part of the regular exercises of the University of Nashville, Tennessee; and the pupils of the well-known school of Professor William Russell, of New Haven, Connecticut, are regularly and thoroughly drilled as an infantry company.

THE NAVAL ACADEMY.

The Naval Academy at Annapolis, Maryland (in 1861 removed to Newport, R. I.), was founded in October, 1845, by the efforts of the Hon. George Bancroft, then secretary of the navy. All the efforts which had previously been made on board of our national cruisers, in the navy yards of Boston, New York, and Norfolk, and in the Naval Asylum of Philadelphia, were found to be insufficient for the proper training and education of midshipmen.

During the infancy of the academy, several plans of an experimental character were tried, which led gradually to the adoption of the admirable system of education now in operation. Midshipmen who had made a cruise at sea, were first sent to the academy, for a term of nine months, to prepare for their final examination, which practice was continued until 1847. In that year, a board of officers recommended a course of four years at the academy—viz., two years before and two years after a cruise at sea. This plan went into operation, but it was soon abandoned, owing to the constant demand at sea for midshipmen during the Mexican war, and it was not until 1851 that the present uninterrupted course of four years at the academy was inaugurated.

Candidates for the Naval Academy are appointed upon the recommendation of members of Congress, and each state and territory is entitled to a number of appointments corresponding with its congressional representatives. Candidates are admitted between the 20th of September and the 1st of October of each year, and, if successful in the preliminary examination, are permitted to assume the naval uniform, and, in the capacity of acting midshipmen, begin their career on the school ship "Constitution." This noble old frigate, lately become an adjunct to the Naval Academy, is the home of the fourth class, during the first year of the course.

The entire corps of acting midshipmen now at the Naval Academy is about two hundred strong, and is divided into four classes, three of which occupy the quarters on shore. During the summer vacation, two of the classes are drafted on board the practice-ship to make a cruise in the Atlantic Ocean, and they return well versed in the

duties of an officer and a sailor, and in the rigging and evolutions of a ship. During the course of four years they are subjected to eight severe examinations, and, if successful in all, they receive a midshipman's warrant; then they go to sea for two years, and return once more to the academy for their final examination. Thus, the term of a midshipman's apprenticeship is six years, at the expiration of which he receives the warrant of a passed-midshipman, and is then left to carve out his own destiny.

The academy is governed by a captain in the navy, assisted by an executive officer and several lieutenants, who are charged with the discipline of the establishment and the instruction of the midshipmen in strictly professional branches. The other departments of instruction are intrusted to competent professors, and the academy is supplied with a valuable library and scientific apparatus, which aid materially in the education of the "future hope of the navy."

CHAPTER XI.

NORMAL SCHOOLS AND OTHER INSTITUTIONS AND AGENCIES FOR THE PROFESSIONAL TRAINING OF TEACHERS.

TEACHING was not recognized as a science or an art in this country until long after what are termed *par excellence* the learned professions. Indeed, it is not by any means yet admitted to its proper dignity as such; and of special schools of preparation for it, only one can date back more than about twenty years, viz., Mr. Hall's, established in 1823.

During the colonial period of the United States, and indeed until within cotemporary memory, teachers were expected to be supplied for many of the more advanced village or district schools, from educational institutions of the higher grades, mainly from the colleges, many of whose students were in the habit of teaching during the winter term. The remaining public schools, in the country at least, were commonly kept by persons who had received no other education than the same class of schools had furnished.

The principal agencies introduced in modern times for the professional training of teachers, setting apart the actual incidental practice already mentioned, by college students and graduates of district schools, and also systematized books on the theory and practice of education,* may be enumerated as 1. Teachers' Associations; 2. Educational Periodicals; 3. Normal Schools; 4. Teachers' Institutes; which agencies respectively first commenced their operations within the United States, in the order named; the two latter, however, in the same year, with an interval of only about four months.

Of Teachers' Associations for professional improvement, the earliest in this country, so far as is known, was the "Middlesex County Association for the Improvement of Common Schools," formed at Middletown, Connecticut, in 1799. The "Incorporated Society of Teachers," in the city of New York, of which Albert Picket was president, and John W. Picket, his brother, corresponding secretary, was incorporated in 1811. The Essex County (Mass.) Teachers' Association was established in August, 1830, by teachers from that county, with a constitution and officers. It is still in existence, and has maintained its series of semi-annual meetings and of lectures unbroken to the present time. The Western College of Teachers, a useful and influential body, was formed in 1831, by the influence of the brothers Picket, Samuel Lewis, and other early friends of education in Ohio and the West.

Far the most prominent and influential, however, of all the existing educational associations in the country, is the American Institute of Instruction. The formation of this body was the ultimate result of a movement which commenced by a meeting of teachers and friends of education at Boston, March 15th to 18th, 1830. This meeting debated and resolved upon a "permanent as-

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* The following is a list of some of the earlier American publications on the principles and methods of education:—

ABBOTT, J. *The Teacher.*

ALCOTT, W. A. *History of First District School of Hartford. Word to Primary School Teachers. Confessions of a Schoolmaster. Slate and Blackboard Exercises.*

BEECHER, MISS C. E. *Suggestions on Female Education.*

BURTON, W. *The District School as it Was.*

DAVIS, E. *Manual for Teachers.*

EMERSON, G. B. *The Schoolmaster.*

GRISCOM, J. *Monitorial Instruction.*

HALL, S. *Lectures on School Keeping. Lectures to Female Teachers.*

PAGE, D. P. *Theory and Practice of Teaching.*

PALMER, T. H. *Prize Essay on Teaching.*

POTTER, A. *The School.*

RUSSELL, W. *Suggestions on Education. Manual of Mutual Instruction.*

sociation of persons engaged and interested in the business of instruction;" and, in pursuance of its votes, an adjourned meeting was held at Boston in August following, at which its constitution and name were adopted, and its first course of lectures delivered. It was incorporated in 1831 by the legislature of Massachusetts, and has received an annual grant from that state. Its series of annual meetings is still continued, and its accompanying series of annual volumes of lectures has now reached the 31st, and includes a valuable mass of useful theoretical and practical discussions.

During the period of educational interest which produced the American Institute of Instruction, many conventions and meetings of teachers and friends of education assembled in different parts of the country, to consult and debate upon means of improvement for schools and teachers. Among the more earnest and efficient of these may be named the Windham County (Conn.) Convention, which met in 1826; the Hartford Society for the Improvement of Common Schools, formed in 1827, and among whose members were Messrs. Hooker, Gallaudet, W. C. Woodbridge, and others; the Pennsylvania Society for the Promotion of Public Schools, formed in 1828; and the Convention of the Teachers of New York, which met at Utica in 1832. These bodies frequently possessed scarcely more than an annual existence, meeting from year to year in pursuance of a new call. Their efforts, however, and the evident capacities of such organizations for usefulness, led directly to the subsequent formation of that class of educational societies known as "State Teachers' Associations." Of these, the Massachusetts State Teachers' Association, and the Rhode Island Institute of Instruction, were organized in 1845; the Ohio State Teachers' Association in 1847; and others have followed, until at present there are no less than twenty-seven State Teachers' Associations, some of them acting with remarkable efficiency for the professional improvement of teachers. In connection with these state bodies, county associations exist in several states, some of them enjoying state aid, and many of them useful co-laborers in the educational field with the state associations with which they are affiliated.

The first proposition in this country for a periodical to be devoted to education was made by Rev. Samuel Bacon, a native of Sturbridge, Massachusetts, who, in 1812, issued the prospectus of a periodical, to be known as *The Academical Herald and Journal of Education.* Mr. Bacon subsequently resumed this idea, but gave it up again upon the appearance of the first actual American educational periodical, *The Academician.* This was a large octavo, issued semi-monthly, at New York, during the years 1818–19, and edited by Albert Picket and John W. Picket, afterward the well-known early influential members of the "Western College of Teachers."

This field of labor now remained unoccupied until the appearance of the *American Journal of Education,* commenced January 1st, 1825, at Boston, Mr. T. B. Wait publisher, and edited by Professor William Russell. With its continuation, the *American Annals of Education,* this well-known and valuable journal appeared until the end of 1839, completing an entire series of fourteen octavo volumes.

In January, 1836, appeared the first number of the *Common School Assistant,* a quarto monthly, edited by J. Orville Taylor, and which was published at Albany, and afterward at New York, during four years and four volumes, and part of a fifth, ending in 1840. This periodical was energetically and usefully edited, was taken and read throughout the country, and did a good work in its day and generation for the cause of common schools.

Mr. Taylor also did much for the cause of education by publishing a *Common School Almanac,* and by delivering forcible and apt addresses on educational subjects in many states of the Union.

In August, 1838, appeared at Hartford, Connecticut, the first number of the quarto *Connecticut Common School Journal,* edited by Henry Barnard, Secretary of the Board of Commissioners of Common Schools. This periodical was published during four years, ending in consequence of the strange reactionary rally which abolished the board in 1842. It contained the state public educational documents of its day, beside a great quantity of valuable selections and original articles. A second series in octavo form was commenced by Mr. Barnard in 1850, covering substantially the same ground, and continued by him until January, 1854, when he surrendered its care to the Connecticut State Teachers' Association, which still publishes it. The interval between 1843 and 1850 was covered by the publication of the *Jour-*

nal of the Rhode Island Institute of Instruction, embodying the official documents and action of Mr. Barnard in that state as commissioner of public schools.

In August, 1855, Mr. Barnard issued the first number of his *American Journal of Education*, published at Hartford, quarterly, in octavo. The plan contemplated a series of at least ten volumes, of about 800 pages, to constitute an encyclopædia of educational materials of permanent value, illustrative of the history, biography, theory, and practice of all departments of education, both in this country and in other parts of the world, as well as a record of cotemporary educational facts and progress. In the progress of this plan hitherto, the ten volumes already completed have included over 300 cuts on school architecture, more than forty singularly fine portraits of eminent American teachers and educators, a still larger number of memoirs, and over 1600 pages on the comparatively new and most important department of methodology.

The earliest suggestion of institutional provision for the specific professional training of teachers seems to have been that of Elisha Ticknor, in an article in the *Massachusetts Magazine* for June, 1789, for county schools under able masters, to teach English grammar, Latin, Greek, rhetoric, geography, mathematics, etc., "in order to fit young gentlemen for college and school keeping."

The first proposition for a separate and exclusive teachers' seminary was, however, set forth by the late Professor Denison Olmsted, in an oration at receiving his master's degree, at commencement, 1816, on the "State of Education in Connecticut." This was to be a state institution, to train teachers for the state public schools. Professor Olmsted's prosecution of his plan was prevented by his accepting a professorship in North Carolina.

Seven years afterward, in March, 1823, Rev. Samuel Read Hall opened at Concord, Vermont, the first teachers' seminary in the United States; an unpretending little school, planned in consequence of his own observations upon the wants of teachers, intended for the improvement of teachers in and near his own town, and including a model class of juvenile pupils.

During the years 1824–5, Messrs. Thomas H. Gallaudet of Hartford, Connecticut; James G. Carter of Lancaster, Massachusetts; and Walter R. Johnson of Germantown, Pennsylvania, issued various pamphlets and newspaper articles, ably urging the necessity, practicability, and advantages of institutions for the professional training of teachers.

In February, 1826, a committee was appointed by the legislature of Massachusetts to report a plan for an institution to instruct in practical arts and sciences. This committee included in the plan recommended by them a department for the professional training of teachers. This scheme was not, however, carried into operation.

In the next year, 1827, Governor Clinton recommended to the legislature of the state of New York the establishment of a normal school, and an act was passed for that purpose. It was, however, strongly opposed by Hon. John C. Spencer, who succeeded in preventing it from going into operation, and in causing the adoption instead of the plan of teachers' departments in academies.

The earliest instance of a teachers' institute in this country, though not then so named, was the experimental one gathered at Hartford, Connecticut, in October, 1839, by the means and at the expense of the then superintendent of common schools in Connecticut, in order to prove the practicability and usefulness of the plan. The result was entirely satisfactory. A similar class, or "temporary normal school," was successfully conducted during eight weeks by Mr. Stephen R. Sweet, at Kingsboro, Fulton county, New York, commencing on the 6th of September, 1842. J. S. Denman, Esq., school superintendent of Tompkins county, New York, urged a similar class upon the attention of the Tompkins County Teachers' Association in October, 1842, and a teachers' institute, supposed by him to be the first in the state and in the world—and probably the first expressly so called—was opened under his direction in that county in April, 1843, and profitably conducted during two weeks.

Institutes were held in many places in New York during the following five years, under the auspices of school officers and teachers; and at the end of that time, in November, 1847, an act of the legislature made them part of the legal school system, and provided a trifling annual appropriation to aid in holding them in each county.

Under the influence of earnest efforts by teachers and educators during 1846, the legislature of Connecticut, in May, 1847,

made an appropriation which enabled the superintendent, Hon. S. P. Beers, to provide for the holding of institutes in each county of the state in the following autumn; and they have since formed part of the state system for training teachers.

Institutes were introduced into Massachusetts in the autumn of 1846, as part of the comprehensive school reform which spread through that state under Horace Mann's secretaryship of the Board of Education. Those of 1846 were held in consequence of Hon. Edmund Dwight's gift of $1000 for the purpose. In the next year the legislature appropriated a sum to continue the plan, and they were thus incorporated into the public school system of the state of Massachusetts.

The economy and efficiency of this agency in training teachers were so great and manifest, that they quickly spread into the other eastern states, and into many of the middle and western ones; and at present may be considered a fixed feature of the American system of special training for teachers. In 1859, it was estimated that upward of 20,000 teachers were assembled under this plan of organization for instruction in their professional duties.

CHAPTER XII.

SCHOOLS OF SCIENCE FOR ENGINEERS, GEOLOGISTS, ETC.

For many years the government school for training army officers, founded in 1802, and known as the United States Military Academy at West Point, stood alone as a seminary for advanced education, in which classical instruction yielded its pre-eminence to mathematical and scientific culture. In 1824, the Rensselaer Polytechnic Institute was founded at Troy, N. Y., and furnished civilians with the means of education in some measure corresponding to but yet much lower than the military school at West Point. More than twenty years afterward, in 1846, the corporation of Yale College established two professorships, which soon formed the nucleus of the Yale Scientific School; and about the same time a gift of $50,000, subsequently increased to double that amount, by Abbott Lawrence, enabled the corporation of Harvard University to establish in 1847 the Lawrence Scientific School. Within a short time Dartmouth College was enabled to go forward in the same direction, by a bequest of $50,000 received from Abiel Chandler, at his decease in 1851, endowing the Chandler Scientific School. As these five institutions naturally form a group by themselves, providing instruction of an advanced character in several different branches of science, a brief sketch will be given of each one; but there are a variety of less advanced schools, and of schools devoted to a single practical object, like the agricultural schools at Lansing, Mich., and Ovid, N. Y., which will be noticed under their appropriate head.

In August, 1846, the corporation of Yale College established two professorships, one of agricultural chemistry, the other of chemistry applied to the arts; to the first of which was appointed John Pitkin Norton; to the latter Benjamin Silliman, Jr. At the same time a committee was appointed to consider the expediency of forming a "Department of Philosophy and the Arts" in connection with the university. In August, 1847, this committee reported that it was expedient to form such a department, for the instruction of other than undergraduate students. Accordingly, the department was organized for the purpose of providing instruction in philosophy, philology, history and natural science, etc. The branches of chemistry and engineering were embraced in one section, under the title of the Yale Scientific School. The professors, before appointed, entered on their duties in the autumn of 1847. In 1852, the corporation established in this department the degree of Bachelor of Philosophy, to be conferred after a two years' connection with the school, and a satisfactory examination in at least three branches of study. In September, 1852, the school suffered a severe loss in the death of its devoted friend, Professor J. P. Norton, who bequeathed to it his collection of books and apparatus. New professorships have from time to time been established, and additional instructors appointed, but the school has lacked until 1860 sufficient accommodations and the pecuniary means necessary for expansion. By the liberality of Joseph E. Sheffield, Esq., of New Haven, it is now provided with a spacious building, especially adapted to its purposes, and a large addition to the fund for sustaining its courses of instruction. To the latter fund other gentlemen have contributed. This building (first opened in September, 1860) contains,

besides the usual lecture rooms, extensive analytical and metallurgical laboratories, and halls for agricultural and technological museums. Opportunity is afforded in the school for pursuing a general scientific course, extending through three years, or special courses in physics, chemistry, industrial mechanics, and engineering, which occupy two years each.

The degree of Bachelor of Philosophy is now conferred on those who have completed either the general course or one of the special courses in the scientific school, and have passed a satisfactory examination. The degree of Civil Engineer is conferred on those who have completed, besides the special course in engineering, a higher course of one year. It is also proposed to confer a higher degree, that of Doctor of Philosophy, on those who in their residence and their scholarship conform to the requirements of the department. In February, 1860, a course of agricultural lectures was given under the patronage of the school. The faculty of the school now consists of the president of the college, a professor of civil engineering, a professor of natural history, a professor of general and applied chemistry, a professor of industrial mechanics and physics, a professor of organic chemistry, a professor of modern languages, a professor of metallurgy, and a professor of analytical and agricultural chemistry, besides certain assistants.

In 1846, the project of a Scientific School, to be connected with Harvard University, was first publicly announced, and the plans laid before Hon. Abbott Lawrence of Boston, a distinguished merchant of wealth and public spirit. In June, 1847, he offered to the college, the munificent sum of $50,000, "for the purpose of teaching the practical sciences." This gift was to be applied for the erection of suitable buildings, and the purchase of apparatus, the residue to form a fund for the support of professors.

On this foundation the school was commenced the same year; Professor Hörsford, already connected with the university, filling the chair of chemistry; Professor Agassiz, of Switzerland, being called to that of zoology and geology, and Lieut. Eustis, of the army, to that of engineering. In 1849, a laboratory, then unsurpassed even in Europe in its conveniences for practical instruction, was erected and furnished; and in 1850 a building was constructed for the temporary accommodation of the departments of zoology, geology, and engineering. Besides the professors already mentioned, instruction is given by the college professors in mathematics, physics, botany, comparative anatomy and physiology, and mineralogy. The school is essentially a combination of independent departments, each having exclusive control of its own internal arrangements, and sustaining a complete course of instruction for itself. At the death of Mr. Lawrence, August 18, 1855, the school received by bequest, as a second gift, the sum of $50,000, to increase its facilities for instruction and research. Connection with the school for at least a single year, in attendance on the prescribed course of studies, in one or more departments, and a satisfactory public examination, are essential to taking the degree of Bachelor of Science.

An estate valued at $350,000 was bequeathed to Harvard College in 1842 by Mr. Benjamin Bussey, of Roxbury, Mass. (to be received after the death of certain relatives), one half of which, including his mansion and farm, was to be appropriated to the establishment of an agricultural school under the direction of the college.

The Chandler Scientific School, connected with Dartmouth College, at Hanover, N. H., was established in 1851, in acceptance of a gift of $50,000, bequeathed to the trustees, for this purpose, by Abiel Chandler. He was a wealthy merchant of Boston, Mass., who was born in 1778 in Concord, N. H., and died in Walpole, N. H., March 22d, 1851. By the will of the founder, instruction is to be given in "mechanics and civil engineering, the invention and manufacture of machinery, carpentry, masonry, architecture, and drawing, the investigation of properties and uses of materials employed in the arts, the modern languages, and English literature, together with bookkeeping." The school was opened in 1852, and the course of study occupies four years; for the general course in the fourth year, may be substituted a civil engineering course or a commercial course.

Those completing the regular course of four years, and passing a satisfactory examination, are entitled to the degree of Bachelor of Science.

Resident graduates will be instructed in the following advanced subjects, through an additional course of one or two years: Analytical chemistry, analytical and celestial

mechanics, application of mechanics to carpentry and masonry, mechanical agents, geodesy, practical astronomy, the arts of design with reference to the useful arts.

The demand for instruction in chemistry beyond the requirements of the general college course, has led to a modification of the requirements of many of our colleges and universities. Among the schools included in the University of Virginia, is one of chemistry, in which department a systematic course of practical instruction is given in qualitative and quantitative analysis. The laboratory is open, and an instructor gives his personal attention to the students therein, for eight hours daily, five days in the week.

CHAPTER XIII.

SCHOOLS OF AGRICULTURE.

THE first plan of an agricultural school or college in the English language, which we have met with, was published in 1651 by "Master Samuel Hartlib," to whom Milton addressed his Tractate on Education, and to whom the Parliament of England gave a pension for his disinterested efforts to advance the agricultural and educational interests of the commonwealth. It was nearly two hundred years before an institution of this character was established by individual enterprise, without the aid of any public grant in the British dominions.

The Agricultural College of the State of Michigan was established in 1855, in accordance with a provision of the revised constitution of the state, adopted in 1850. The legislature in 1855, and again in 1857, provided for the purchase of land and the endowment and management of the institution. A tract of 676 acres, lying three and a half miles east from Lansing, the state capital, was purchased, and a building with accommodations for 80 pupils was erected and dedicated May 13th, 1857. The faculty includes a president, and professors of mathematics, chemistry, physiology and entomology, natural science, English literature and farm economy and horticulture. The tuition is free (except a matriculation fee of $5), and the students are required to labor three hours a day on the farm, for which they receive a compensation which is allowed in payment of board. The course of professional instruction embraces two years, and includes—I. Theory and Practice of Agriculture—II. Agricultural Chemistry—III. Civil and Rural Engineering—IV. Botany and Vegetable Physiology—V. Zoology and Animal Physiology. There is a preparatory course of one year, designed for candidates who have not pursued elsewhere the preliminary studies required in English language, geography and arithmetic, for entrance.

The State University of Michigan at Ann Arbor provides a scientific course, occupying four years, and embracing mathematics, astronomy, geology, zoölogy, botany, chemistry, mineralogy, philosophy, rhetoric, history and modern languages. The School of Engineering, connected with the institution, receives students who have completed the second and third years of the scientific course, and devotes two years to their instruction in engineering. The only charge to the student, from whatever part of the country he may come, is an admission fee of ten dollars.

The Maryland Agricultural College was established and endowed by the state legislature in 1856. The college farm is about two and a half miles north of Bladensburg, in Prince George's county. The faculty includes a president, and five professors, viz.: one of the science of agriculture, including chemistry, geology, etc.; one of the exact sciences, one of languages, one of philosophy, history, etc., and one of natural history, botany, etc. The student, in connection with his course, is obliged to labor on the farm.

The agricultural school now established near Ovid, Seneca Co., N. Y., took its rise from plans started as early as 1837. Nothing definite was accomplished until, in 1844, a charter for an agricultural school was obtained from the legislature; after further delays, in 1856, the sum of $40,000 was appropriated to the school by the legislature, on condition that a like sum be raised by private subscription. This was speedily accomplished, and a tract of some 400 acres purchased. Preparation is making for the accommodation of a large number of pupils.

The Farmers' High School of Pennsylvania was founded by the agricultural society of the state, with a fund of $10,000, accumulated from its annual exhibitions up to the autumn of 1854. The legislature passed an act of incorporation, and a board of trustees was organized; after various private

subscriptions, the legislature appropriated in 1858 the sum of $50,000 to the school, half of which sum being dependent on the raising of a like amount by individual contribution. In 1856, the suitable farm-buildings were erected on lands given to the school.

CHAPTER XIV.

COMMERCIAL SCHOOLS.

"COMMERCIAL schools," which supply an education adapted to future business life, and to make up in some measure for previous deficiencies in the studies of youths early devoted to trade, are a class of schools of quite recent date; none of them, it is believed, being of a greater age than fifteen or twenty years. They are naturally established in the larger and busier mercantile cities, and their course of study, of course a comparatively brief and confined one, usually includes but little if any of classics and literature, consisting principally of writing, book-keeping, commercial arithmetic, business proceedings, and sometimes mercantile law. Their existence seems to indicate a deficiency in their department, in the higher public schools, although those schools could not afford a similar course of equal extent and thoroughness. But there is no doubt that a competent course of studies preparatory to commercial life, should form part of the course of the high schools of our cities and large business towns.

CHAPTER XV.

SCHOOLS FOR MECHANICS.

DURING nearly half a century, many indications may be traced of a more or less distinct feeling of the need of some systematic instruction in mechanic arts, although this feeling has not been so extensive and decided as to result in any permanent institutional provision for the purpose.

The Lyceum movement, in which Josiah Holbrook was so active a laborer, commencing about 1823, was accompanied by the institution of many courses of lectures and classes upon subjects connected with mechanics and trades. The Mechanics' School of New York City, an institution still existing, was originally intended to afford instruction, among other things, in mechanical processes and the application of mechanical principles.

A movement was made in the legislature of Massachusetts, in 1825, for the establishment of a state institution for the professional training of youth intending to follow "mercantile, manufacturing, and mechanical pursuits." Though advocated with some earnestness during several sessions, this plan never reached a practical development.

The "manual labor schools," of which a considerable number were established a few years later, frequently provided for the practice of some mechanical trade, usually carpentry. Such was the case at Lane Seminary and at the Oneida Institute, both founded in 1829, and elsewhere.

Somewhat more extensive was the plan of the Franklin Institute of Philadelphia, which established in 1826 a high school, of which it was a special object to "afford the industrial classes cheap instruction in sciences and arts." This institution flourished under the energetic management of Professor W. R. Johnson, and until superseded by the introduction of the present school system of Philadelphia, with its high school, which has not, however, retained this practical department.

Brief courses of lectures, to apprentices, or to mechanics, were organized at various points, as a consequence of the Lyceum movement. Where these have been maintained as an annual institution, however, their distinctive, practically useful character has invariably disappeared in the merely amusing dissipation which is the only object of the present "lecture system."

There exist at present in Philadelphia and Brooklyn schools known as "Polytechnic Schools;" but this name seems to have been chosen as well adapted to catch the ear, rather than as descriptive of any thing peculiar in their course of study.

Some provision for systematic instruction in the mechanic arts, of a higher grade than the pure realism of the shop, is certainly needed. Departments of this character attached to the higher public schools of our larger towns would unquestionably serve a very useful purpose, and would command a certain number of pupils. At the same time it must be confessed that this number would not immediately be great; a fact readily accounted for by the two considera-

tions, that the peculiar conditions of life in the United States strongly disincline the young to apply themselves long or closely to the acquirement of a finished mastery of any occupation, and that it would be extremely difficult to supply instructors qualified to explain and teach the actual practical application to wood, stone, metal, and other materials, of true scientific principles in the most economical way.

CHAPTER XVI.

FINE ARTS.

In modern civilization, culture in fine arts (music, painting, sculpture, architecture) is the attribute and privilege of an advanced stage of social organization. The people of the United States, hitherto intensely occupied in subduing a new country, and in a vigorous and prosperous pursuit of material wealth, have at the present day but just begun those vast accretions of capital, which must form the basis of any culture in fine arts worthy of the name. To none of these arts has great attention been given, and for teaching them nothing like a general public provision has been made.

During the last thirty years, the practice has slowly gained ground among the public schools, both in city and country, of affording the pupils some instruction and training in the rudiments of singing. In a far smaller number of schools, similar rudimentary instruction has been given in drawing; and in one or two secondary schools of the higher city class, pupils have been afforded the means of pursuing that study further, by means of collections of casts and models.

Generally speaking, however, the aspirant after a profound or even competent knowledge of any fine art, has been left to acquire it either by his own unassisted and solitary labor, by the aid of some older practitioner, or by study in foreign schools of art.

The progress of the study of music in our schools, is coincident with the career of the distinguished teacher, Lowell Mason, who was the first to introduce into the school system an efficient mode of teaching singing, about 1830. Of musical schools exclusively, it is believed that there has not been more than one, viz., at "Music Vale" in Connecticut. Private schools for girls usually afford their pupils more or less training in executing music upon the piano forte, but without communicating any scientific knowledge of music.

Within a recent period, several schools have been opened in a few of the larger cities, for instruction in drawing; always having the practical side most prominent, and leading their pupils as rapidly as possible toward the production of salable designs for manufacturing purposes, or of wood engravings for the use of publishers. A superficial practice in drawing, usually by the senseless method of exclusively copying other drawings or engravings, is commonly afforded at private schools for girls. Some small advantages for those desiring more advanced acquirements, are afforded by the various public galleries and collections accessible in some large cities. The painter or sculptor, as well as the architect, must however learn his art from such sources as his individual opportunities allow him to command.

CHAPTER XVII.

FEMALE EDUCATION.

The education of girls is of course not properly a special department any more than that of boys. Still, the history and the present condition of this department of education present many facts which will sufficiently justify its separate treatment, aside from the intrinsic differences which must also characterize it.

Until a comparatively recent period, but trifling provision was made for the education of girls. Down to the close of the Revolution, although girls might attend the public schools, but a small share of time or labor was devoted to them; and their attention was supposed to be more suitably directed to needle-work and housewifery than to intellectual training.

The first school of eminence exclusively for girls was the Moravian Seminary at Bethlem, Pennsylvania. This was established as early as 1749, but was not opened as a boarding-school until 1785. It enjoyed a national reputation; and its catalogue includes such names as Lansing, Livingston, Bayard, Sumter, and many others from the whole range of states. It was never more flourishing than in 1860.

It has been claimed that President Dwight, in his school at Greenfield, opened in 1783,

was the first in the country to admit pupils of both sexes to an entire equality of intellectual training. In any event, both this school and his previous one at Northampton afforded to both boys and girls an education of uncommon value for the period.

When that famous teacher, Caleb Bingham, removed to Boston, in 1784, he did so with the design of opening there a school for girls, who were, singularly enough, at that time excluded from the public schools. Mr. Bingham's enterprise was successful, and was also the means of revolutionizing the unfair school system of the city, and of introducing a plan which, though variously imperfect, at least provided some public instruction for girls.

In 1792, Miss Pierce opened a school for girls at Litchfield, Connecticut, which continued in operation for forty years, and educated large numbers of young ladies from all parts of the country. In the same year, at Philadelphia, was incorporated one of the first, if not the first, female academies in this country.

From about 1797 to 1800, Rev. William Woodbridge, father of the well-known author and educator W. C. Woodbridge, taught a young ladies' school, at first at Norwich, and afterward at Middletown, Conn.

In 1816, Mrs. Emma Willard commenced her endeavors to secure for women the opportunity of acquiring a grade of education corresponding to that which colleges furnish to the other sex. The eminent success and excellence of her celebrated school at Troy are well known; and an important consequence of her labors was, that female seminaries were admitted to receive aid from the literature fund of the state of New York, on the same terms with the academies.

From 1818 to 1830, Rev. Joseph Emerson conducted a young ladies' school of high reputation and efficiency, successively at Byfield and Saugus, Mass., and Wethersfield, Conn. In 1823, George B. Emerson, Esq., opened a young ladies' school at Boston, probably with a more complete and efficient outfit and apparatus than any which had preceded it.

The well-known school of John Kingsbury, Esq., an institution of similar grade and excellence, was opened at Providence, R. I., in 1828.

In 1822, Miss Catherine E. Beecher opened a school for young ladies at Hartford, Conn., which she conducted with eminent success for ten years. She afterward taught for a short period at Cincinnati, but her labors for female education have subsequently consisted in various publications, and in the management of an extended scheme for a system of Christian female education, including a national board, high schools, and normal schools; which has resulted in the establishment of several valuable institutions.

In 1825, at Wilbraham, Mass., was opened the first of the Methodist Conference seminaries; institutions whose plan has substantially followed that of the Wilbraham Seminary, which was drawn up by Rev. Wilbur Fiske, its first principal.

Miss Z. P. Grant and Miss Mary Lyon, both pupils of Rev. Joseph Emerson, were associated in the conduct of an excellent school for young ladies at Ipswich, Mass. The energetic and persevering labors of Miss Lyon, with the purpose of establishing a permanent Protestant school of high grade for young ladies, resulted in the establishment of the celebrated seminary at South Hadley, which was opened in 1837.

The present era in the history of female education in the United States is perhaps most strikingly characterized by the number of large and largely endowed institutions of a high grade, which have been established in various parts of the country. One of them is the Mount Holyoke Female Seminary, at South Hadley, just mentioned. The Packer Collegiate Institute at Brooklyn, N. Y., another of them, had previously existed as the Brooklyn Institute; and received its present name in consequence of the munificent gift of $85,000 by Mrs. Harriet L. Packer of that city. The whole property represents a value of $150,000. A still more magnificent endowment is that of the Vassar Female College at Poughkeepsie, N. Y., for which the vast sum of $408,000 has been given by Matthew Vassar, Esq., of that city.

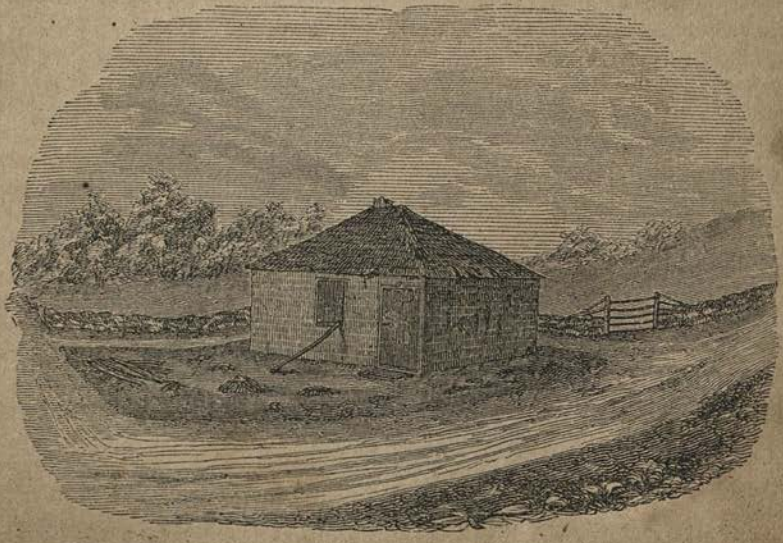
A characteristic of the female education of the present period is the practice of admitting pupils of both sexes to institutions for secondary and superior education; to the high schools of cities, to academies, to the normal schools, and even in one or two institutions of the collegiate grade. Another one is the increasing regard which is paid to the employment of female teachers, and to their thorough preparatory training for that duty, in institutions partly or wholly for that purpose. On the whole, the department of female education is, at present, attracting as much attention, and improving as rapidly, as any other.

CHAPTER XVIII.

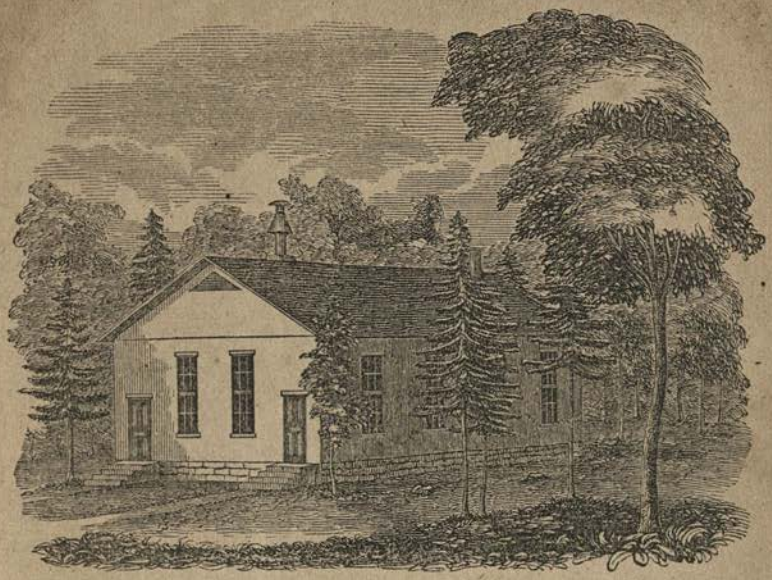
SCHOOL-HOUSES, APPARATUS, AND TEXT-BOOKS.

In no department of instruction has the work of improvement been so general, so rapid, or so thorough as in the material outfit of the school. Within a quarter of a century a revolution has been wrought in public opinion and action in respect to the location, construction, ventilation, warming, furniture, and equipment generally, of school-houses, and more than thirty-five millions of dollars have been expended for these objects within this short period.

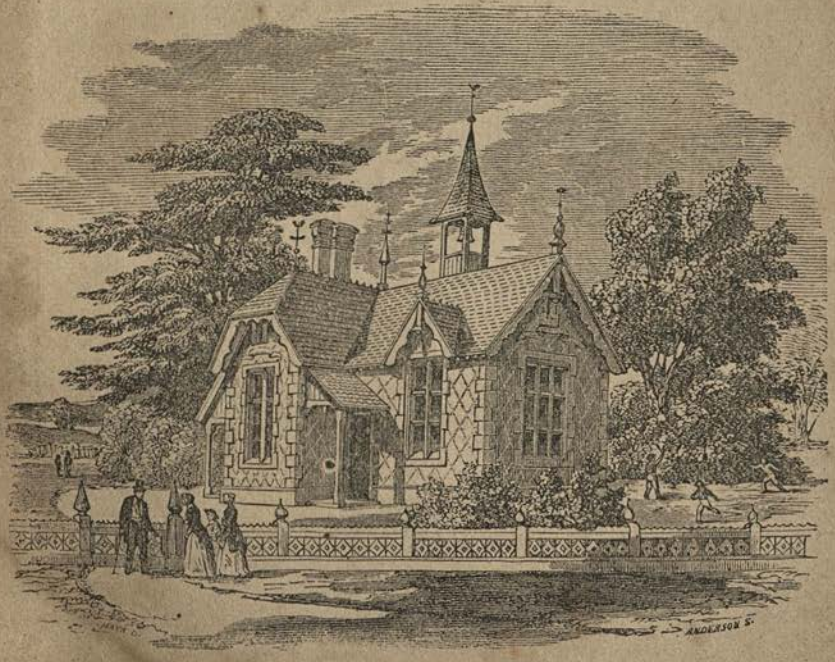
SCHOOL-HOUSES AS THEY WERE.



SCHOOL-HOUSES AS THEY ARE.

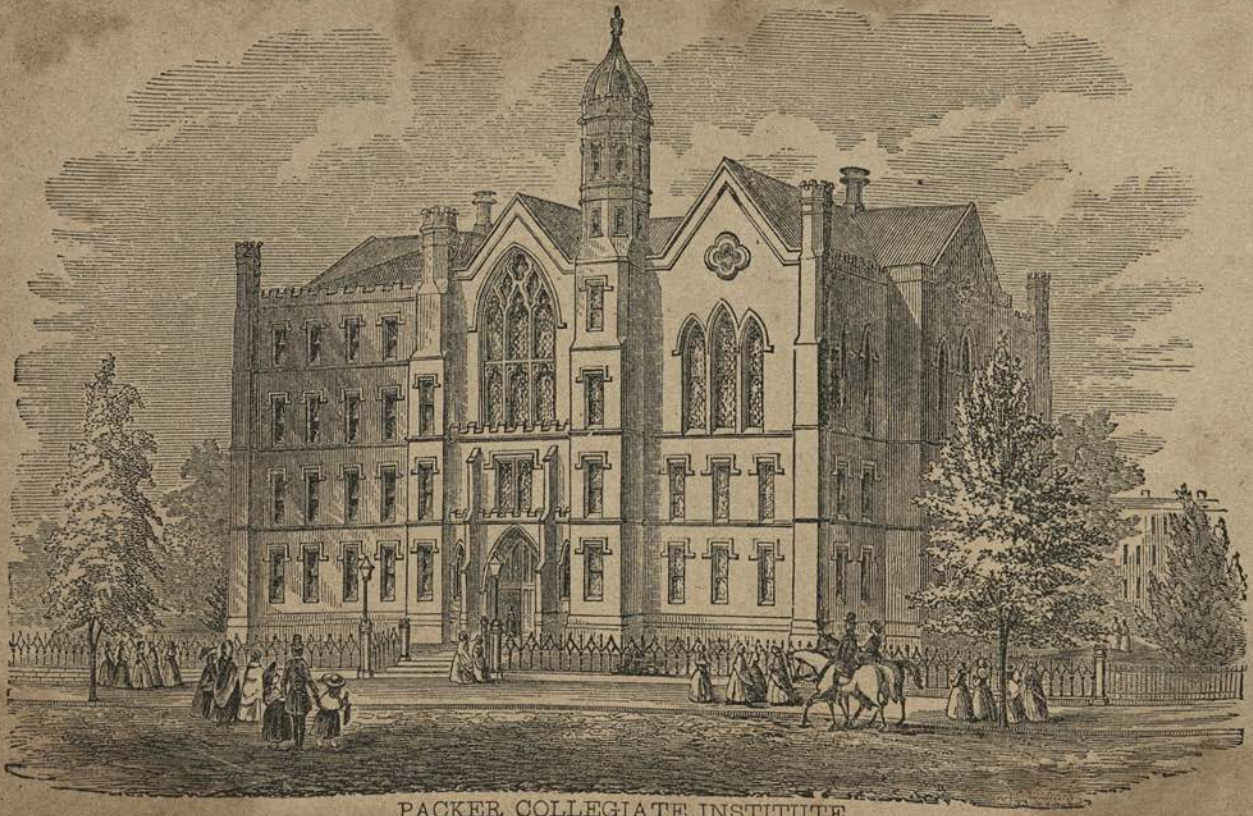


COUNTRY DISTRICT SCHOOL-HOUSE.



VILLAGE SCHOOL-HOUSE.

VIEW OF GIRARD COLLEGE.



PACKER COLLEGIATE INSTITUTE

Fig. 2. GARDEN FRONT.

Fig. 3. INTERIOR OF CHAPEL.

NORWICH (CONN) FREE ACADEMY.

CHICAGO CITY UNIVERSITY.

SCHOOL-BOOKS.

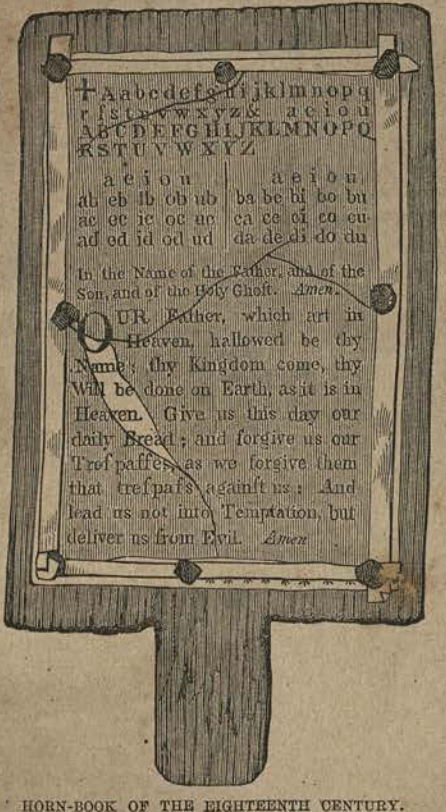
The improvement in the authorship and manufacture of text-books, from the Primer to the Manuals of our colleges and scientific schools, within the last half century is immense. We will refresh the memory of some of our readers by reproducing a few of the tough subjects and illustrations with which they or their fathers were painfully familiar.

The Horn-book.

Few of us have had the satisfaction of learning our letters after the manner described by Prior:—

> "To master John the English maid
> A Horn-book gives of gingerbread;
> And that the child may learn the better
> As he can name, he eats the letter."

To many, even a picture of the old-fashioned Horn-book—the Primer of our ancestors, consisting of a single leaf pasted on a board, and covered in some instances with thin


a e i o u
a e i o u
In the Name of the Father, and of the Son, and of the Holy Ghoft. Amen.
OUR Father, which art in Heaven, hallowed be thy Name; thy Kingdom come, thy Will be done on Earth, as it is in Heaven. Give us this day our daily Bread; and forgive us our Treſpaſſes, as we forgive them that treſpaſs againſt us: And lead us not into Temptation, but deliver us from Evil. Amen

HORN-BOOK OF THE EIGHTEENTH CENTURY.

transparent horn to preserve it from being torn or soiled—will be new. The following description and the accompanying cut we copy from Barnard's *American Journal of Education*, for March, 1860:—

Shenstone, who was taught to read at a dame school near Halesowen, in

his delightfully quaint poem of the *Schoolmistress*, commemorating his venerable preceptress, thus records the use of the Horn-book:—

"Lo! now with state she utters her command;
Eftsoons the urchins to their tasks repair;
Their books of stature small they take in hand,
Which with pellucid horn secured are
To save from finger wet the letters fair."

Cowper thus describes the Horn-book of his time:—

"Neatly secured from being soiled or torn
Beneath a pane of thin translucent horn,
A book (to please us at a tender age—
'Tis called a book, though but a single page),
Presents the prayer the Saviour deigned to teach,
Which children use, and parsons—when they preach."

Tirocinium, or a Review of Schools, 1784.

In "*Specimens of West Country Dialect*," the use of the Horn-book is thus shown:—"Commether *Billy Chubb*, an breng the hornen book. Gee ma the vester in tha windor, yor *Pal came!*—What! be a sleepid—I'll wàke ye. Now, *Billy*, there's a good bway! Ston still there, and mind what I da zà to ye, an whaur I da point. Now; criss-cross, girt à, little a—b—c—d. That's right, *Billy;* you'll zoon lorn the criss-cross-lain; you'll zoon auvergit Bobby Jiffry—you'll zoon be a *scholard*. A's a pirty chubby bway—Lord lov'n!"

New England Primer.

Of the New England Primer we can give no earlier specimen than the edition of 1777, embellished with a portrait of John Hancock, Esq., who was at that time President of the Continental Congress.

The Honorable JOHN HANCOCK, Esq; Preſident of the *American* CONGRESS.

We must not omit the painfully interesting group of John Rogers in the burning faggots, with his wife and nine or ten children—including the one at the breast—a problem which has puzzled many a schoolboy's brain:

MR. JOHN ROGERS, miniſter of the goſpel in *London*, was the firſt martyr in Queen MARY'S reign, and was burnt at *Smithfield*, *February* 14, 1554.—His wife with nine small children, and one at her breast following him to the ſtake; with which ſorrowful ſight he was not in the leaſt daunted, but with wonderful patience died courageouſly for the goſpel of JESUS CHRIST.

We are fortunate in being able to present our readers with an exact transcript of the four pages of the first illustrated alphabet printed in this country. Some of our readers may recognize their old friends of the later editions of the Primer, in which "Young Timothy" and "Zaccheus he" were drawn to nature less severely true. The whole belongs to that department of literature which "he who runs may read, and he who reads will run."

A In ADAM's Fall
We ſinned all.

B Heaven to find,
The Bible Mind.

C Chriſt crucify'd
For ſinners dy'd.

D The Deluge drown'd
The Earth around.

E ELIJAH hid
By Ravens fed.

F The judgment made
FELIX afraid.

N NOAH did view
The old world & new

O Young OBADIAS,
DAVID, JOSIAS
All were pious.

P PETER deny'd
His Lord and cry'd.

Q Queen ESTHER ſues
And ſaves the *Jews*.

R Young pious RUTH
Left all for Truth.

S Young SAM'L dear
The Lord did fear.

G As runs the Glass,
Our Life doth paſs.

H My Book and Heart
Muſt never part.

I JOB feels the Rod,—
Yet bleſſes GOD.

K Proud Korah's troop
Was ſwallowed up

L LOT fled to *Zoar*,
Saw fiery Shower
On *Sodom* pour.

M MOSES was he
Who *Iſrael's* Hoſt
Led thro' the Sea.

T Young TIMOTHY
Learnt ſin to fly.

U VASTHI for Pride,
Was ſet aſide.

W Whales in the Sea,
GOD's Voice obey.

X XERXES did die,
And ſo muſt I.

Y While youth do chear
Death may be near.

Z ZACCHEUS he
Did climb the Tree
Our Lord to ſee.

WEBSTER'S SPELLING BOOK.

FEW books have done more to give uniformity to the orthography of the language or to fill the memory of successive generations with wholesome truths than Webster's Spelling Book. Who can forget his first introduction to those four-and-twenty characters, standing in stiff upright columns, in their roman and italic dress, beginning with little *a*, and ending with that nondescript "*and per se;*" or his first lesson in combining letters,

ba be bi bo bu by

Or his joy in reaching words of two syllables,

ba ker bri er ci der

Or his exultation in learning to "know his duty" in those "Lessons of Easy Words" beginning,

No man may put off the law of God:

Or the more advanced steps, both in length of words and stubborn morality, in pursuit of

The wick-ed flee

And closing his spelling career with

Om pom pa noo suc
Mish il li mack a nack

And

Ail to be troubled
Ale malt liquor

In this hasty glance at this famous text book, we have designedly passed over the fables commencing with the Rude Boy and ending with Poor Tray, that we might introduce them all unabridged with their unique illustrations.

Of the Boy that ſtole Apples.

AN *old man found a rude boy upon* one of his trees ſtealing Apples, and deſired him to come down; but the young Sauce-box told him plainly he would not. Won't you? ſaid the old Man, then I will fetch you down; ſo he pulled up ſome tufts of Graſs, and threw at him; but this only made the Youngſter laugh, to think the old Man ſhould pretend to beat him down from the tree with graſs only.

Well, well, ſaid the old Man, if neither words nor graſs will do, I muſt try what virtue there is in Stones; ſo the old Man pelted him heartily with ſtones; which ſoon made the young Chap haſten down from the tree and beg the old Man's pardon.

MORAL.

If good words and gentle means will not reclaim the wicked, they muſt be dealt with in a more ſevere manner.

The Country Maid and her Milk Pail.

WHEN men ſuffer their imagination to amuſe them, with the proſpect of diſtant and uncertain improvements of their condition, they frequently ſuſtain real loſſes, by their inattention to thoſe affairs in which they are immediately concerned.

A country Maid was walking very deliberately with a pail of milk upon her head, when ſhe fell into the following train of reflections: The money for which I ſhall ſell this milk will enable me to increaſe my ſtock of eggs to three hundred. Theſe eggs, allowing for what may prove addle, and what may be deſtroyed by vermin, will produce at leaſt two hundred and fifty chickens. The chickens will be fit to carry to market about Chriſtmas, when poultry always bears a good price; ſo that by May Day I cannot fail of having money enough to purchaſe a new Gown. Green—let me conſider—yes, green becomes my complexion beſt, and green it ſhall be. In this dreſs I will go to the fair, where all the young fellows will ſtrive to have me for a partner; but I ſhall perhaps refuſe every one of them, and with an air of diſdain, toſs from them. Tranſported with this triumphant thought, ſhe could not forbear acting with her head what thus paſſed in her imagination, when down came the pail of milk, and with it all her imaginary happineſs.

The Cat and the Rat.

A CERTAIN Cat had made ſuch unmerciful havoc among the vermin of her neighbourhood, that not a ſingle Rat or Mouſe ventured to appear abroad. Puſs was ſoon convinced, that if affairs remained in their preſent ſituation, ſhe muſt be totally unſupplied with proviſions. After mature deliberation, therefore, ſhe reſolved to have recourſe to ſtratagem. For this purpoſe ſhe ſuſpended herſelf to a hook with her head downwards, pretending to be dead. The Rats and Mice, as they peeped from their holes, obſerving her in this dangling attitude, concluded ſhe was hanging for ſome miſdemeanour; and with great joy immediately ſallied forth in queſt of their prey. Puſs, as ſoon as a ſufficient number were collected together, quitting her hold, dropped into the midſt of them; and very few had the fortune to make good their retreat. This artifice having ſucceeded ſo well, ſhe was encouraged to try the event of a ſecond. Accordingly ſhe whitened her coat all over, by rolling herſelf in a heap of flour, and in this diſguiſe lay concealed in the bottom of a meal tub. This ſtratagem was executed in general with the ſame effect as the former. But an old experienced Rat, altogether as cunning as his adverſary, was not ſo eaſily enſnared. I don't much like, ſaid he, that white heap yonder: Something whiſpers me there is miſchief concealed under it. 'Tis true it may be meal; but it may likewiſe be ſomething that I ſhould not reliſh quite ſo well. There can be no harm at leaſt in keeping at a proper diſtance; for, caution, I am ſure, is the parent of ſafety.

The Fox and the Swallow.

ARISTOTLE informs us, that the following Fable was ſpoken by Eſop to the Samians, on a debate upon changing their miniſters, who were accuſed of plundering the commonwealth.

A Fox ſwimming acroſs a river, happened to be entangled in ſome weeds that grew near the bank, from which he was unable to extricate himſelf. As he lay thus expoſed to whole ſwarms of flies, which were galling him and ſucking his blood, a ſwallow, obſerving his diſtreſs, kindly offered to drive them away. By no means, ſaid the Fox; for if theſe ſhould be chaſed away, which are already ſufficiently gorged, another more hungry ſwarm would ſucceed, and I ſhould be robbed of every remaining drop of blood in my veins.

The Fox and the Bramble.

A FOX, cloſely purſued by a pack of Dogs, took ſhelter under the covert of a Bramble. He rejoiced in this aſylum; and for a while, was very happy; but ſoon found that if he attempted to ſtir, he was wounded by thorns and prickles on every ſide. However, making a virtue of neceſſity, he forebore to complain; and comforted himſelf with reflecting that no bliſs is perfect; that good and evil are mixed, and flow from the ſame fountain. Theſe Briers, indeed, ſaid he, will tear my ſkin a little, yet they keep off the dogs. For the ſake of the good then let me bear the evil with patience; each bitter has its ſweet; and theſe Brambles, though they wound my fleſh, preſerve my life from danger.

The Partial Judge.

A FARMER came to a neighbouring Lawyer, expreſſing great concern for an accident which he ſaid had juſt happened. One of your Oxen, continued he, has been gored by an unlucky Bull of mine, and I ſhould be glad to know how I am to make you reparation. Thou art a very honeſt fellow, replied the lawyer, and wilt not think it unreaſonable that I expect one of thy Oxen in return. It is no more than juſtice, quoth the Farmer, to be ſure; but what did I ſay? —I miſtake—It is *your* Bull that has killed one of *my* Oxen. Indeed! ſays the Lawyer, that alters the caſe; I

muſt inquire into the affair; and if—And *if!* ſaid the Farmer—the buſineſs I find would have been concluded without an *if*, had you been as ready to do juſtice to others, as to exact it from them.

The Bear and the two Friends.

TWO Friends, ſetting out together upon a journey, which led through a dangerous foreſt, mutually promiſed to aſſiſt each other if they ſhould happen to be aſſaulted. They had not proceeded far, before they perceived a Bear making towards them with great rage.

There were no hopes in flight; but one of them, being very active, ſprung up into a tree; upon which the other, throwing himſelf flat on the ground, held his breath and pretended to be dead; remembering to have heard it aſſerted, that this creature will not prey upon a dead carcaſs. The bear came up, and after ſmelling to him ſome time, left him and went on. When he was fairly out of ſight and hearing, the hero from the tree called out—Well, my friend, what ſaid the bear? he ſeemed to whiſper you very cloſely. He did ſo, replied the other, and gave me this good piece of advice, never to aſſociate with a wretch, who in the hour of danger, will deſert his friend.

The Two Dogs.

HASTY and inconſiderate connections are generally attended with great diſadvantages; and much of every man's good or ill fortune, depends upon the choice he makes of his friends.

A good-natured Spaniel overtook a ſurly Maſtiff, as he was travelling upon the high road. Tray, although an entire ſtranger to Tiger, very civilly accoſted him; and if it would be no interruption, he ſaid, he ſhould be glad to bear him company on his way. Tiger, who happened not to be altogether in ſo growling a mood as uſual, accepted the propoſal; and they very amicably purſued their journey together. In the midſt of their converſation, they arrived at the next village, where Tiger began to diſplay his malignant diſpoſition, by an unprovoked attack upon every dog he met. The villagers immediately ſallied forth with great indignation, to reſcue their reſpective favourites; and falling upon our two friends, without diſtinction or mercy, poor Tray was moſt cruelly treated, for no other reaſon, but his being found in bad company.

The following cuts, sketched from WILLSON'S Series of "School and Family Readers," with the accompanying explanations, show the great degree of advancement made, not only in the artistic beauty of the Illustrations contained in the latest published of our Reading-Books, but, more especially, in the successful attempt to combine *instruction in reading* with *advancement in useful knowledge.*

From the First Reader.

Eye, Nose, Ear, Mouth, Face.

Arm, Hand, Boot, Foot, Shoe.

The Eagle's Nest.

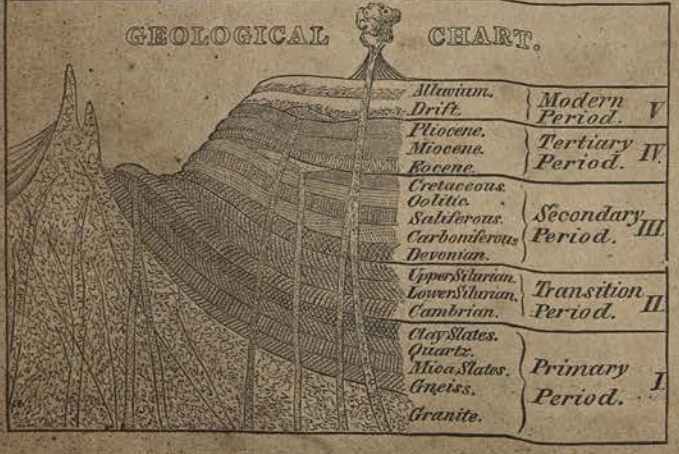
The leading principle developed in the SECOND READER (but which also runs throughout the entire Series) is the early cultivation of the *Perceptive Faculties* by lessons drawn from a great variety of objects and scenes which are represented to the eye of the pupil.

The THIRD READER of the Series, after a brief synopsis of the "Elements of Elocution," is divided into Four Parts:—PART I., "Stories from the Bible," beautifully and bountifully illustrated.—PART II., "Moral Lessons."—Part III., "First Division of Animal Life," embracing the Mammalia; and PART IV., "Miscellaneous." The following four illustrations give the pupil a general idea of the four great divisions of the Animal Kingdom.

ANIMALS OF THE SEAL KIND.—1. Common Seal, *Phoca vitu'lina.* 2. Sea-Bear, *Phoca ursina.* 3. Sea-Lion, *Phoca jubata.* 4. Walrus, or Sea-Horse, *Trichechus rosmarus.*

The subject of the *Mammalia*, in the THIRD READER, is illustrated by more than two hundred figures of Animals, many of them in groups, with *Scales of Measurement* showing their comparative sizes, as in the Animals of the Seal kind in the annexed engraving. This we believe to be a new feature, even in zoological works, and it is one that is eminently useful.

An attempt has been made—and, it is believed, successfully—to invest the subject of animal life with a great degree of *interest* for children; to *popularize* it to their capacities; to give all desirable variety to the lessons, as exercises in reading; and to convey as much positive *information* as would be compatible with these requisites for a good Reading-Book. Numerous interesting incidents of animal life, illustrating traits of character, habits, &c., and both poetical and prose selections, effectually relieve the descriptions of that *sameness* of style and matter which is found in most zoological works.



The FOURTH READER, in addition to Miscellaneous Selections, has divisions or "Parts" appropriated to "Human Physiology and Health," "Ornithology, or Birds," "Vegetable Physiology, or Botany," "Natural Philosophy," and "Sacred History," in all which there is great literary variety, well adapted for reading lessons; and, moreover, the beautiful illustrations teach *useful facts*. One of the cuts from "Ornithology," showing the forms, relative sizes, &c., of the "Climbing Birds," is here given.

The FIFTH READER, which is the highest in the Series thus far published, has, in addition to the Miscellaneous Divisions embracing a variety of the best literary selections, the eleven following "Parts."

1. "Elocutionary;" 2. "Herpetology, or Reptiles;" 3. "Second Division of Human Physiology and Health;" 4th, "Second Division of Vegetable Physiology, or Botany; 5. "Ichthyology, or Fishes;" 6. "Civil Architecture;" 7. "Second Division of Natural Philosophy; 8. "Physical Geography;" 9. "Chemistry;" 10. "Geology;" 11. "Ancient History." We have room to introduce only one illustration from each of two of these divisions.

The Botanical Illustration here given represents the Trumpet-Flower and Labiate Families; another cut shows the features which specially characterize these families, but for which we have not room here. The Classification of Plants, in accordance with the *Natural System*, is shown chiefly by such interesting illustrations as these, which certainly accomplish far more than pages of description. Moreover, the economical uses of plants are not overlooked, and the entire treatment of the subject is well calculated to cultivate, in early life, a taste for the successful study of Nature. In the department of Ichthyology, 125 species of fish are figured. Physical Geography, Architecture, Geology, &c., have their appropriate illustrations, all teaching useful facts in science, but without the dryness which usually accompanies scientific detail.

Of the very successful manner in which the above subjects have been made to combine the *literary variety* required in Reading-Books for youth, with *instruction in useful knowledge*, we have not room to speak here; but we commend a critical examination of the books themselves — in their design, plan, and execution — to every one interested in the subject of Educational Progress.

What a contrast between these and our earlier Reading-Books! The simple fact that publishers can now *afford* to illustrate, so elaborately, books designed for use in our *Common Schools*, speaks volumes for the cause of Popular Education.

SCHOOL APPARATUS.

APPARATUS AND EQUIPMENT OF THE DISTRICT SCHOOL AS IT WAS.

SPECIMENS OF APPARATUS OF THE SCHOOL AS IT IS.

CHAPTER XIX.

LIBRARIES.

At the close of the Revolution, there were very few public libraries in the country; hardly any, indeed, away from the colleges and large towns, and even these, few and small as they were, were not generally accessible. The oldest of them all was that of Harvard University, which commenced with the bequest of Harvard's books in 1638, but had been completely destroyed by fire in 1764. Great efforts were made to restore it, and before the commencement of the Revolution about $20,000 and considerable quantities of books had been contributed for that purpose. It could, however, hardly have had more than 10,000 or 12,000 volumes at that period. The only other college libraries then in existence (all of them small, but two or three of them containing many valuable works,) were the library of Yale College, founded in 1700, which had received important additions from Bishop Berkeley and other English gentlemen; the very small library of William and Mary, at Williamsburg, Va., founded, perhaps, two or three years earlier; that of the University of Pennsylvania, founded in 1749, also small, but valuable; that of New Jersey College, at Princeton, founded in 1746; that of King's, now Columbia, College, founded in 1757, and containing at the close of the Revolution not more than 2000 volumes; and the few hundred volumes which had been collected, as nuclei of libraries, in Brown University from and after 1768, Dartmouth College from 1769, and Rutgers College from 1770 to the close of the war. Of proprietary libraries, the oldest and best was the Philadelphia Library Company and Loganian Collection, founded by Benjamin Franklin in 1731, which in 1783 contained about 5000 volumes. The Redwood Library at Newport, R. I., founded in 1747, though not a large collection, possessed considerable value to the classical and theological student. The New York Society Library, founded in 1754, had attained to considerable size prior to the war, but suffered much from the vandalism of the British soldiers, its books being carried off by the knapsackful and bartered for grog. In 1795 it had only 5000 volumes. The Charleston Library Society was founded a year or two earlier than the New York Society, and at the commencement of the war had between five and six thousand volumes, aside from the library of Mr. Mackenzie, bequeathed to it about the same time. In 1778, however, this fine collection was almost entirely destroyed by fire, a small portion of the books only being rescued from the flames, and of these many being broken sets. The Providence Athenæum, founded in 1753, the Salem Athenæum in 1760, and the Portland Athenæum in 1765, small collections, but well selected, the special library of the American Philosophical Society at Philadelphia, and a state library of three or four hundred volumes, at Concord, New Hampshire, complete the catalogue of public libraries of any considerable importance at the close of the war of the Revolution.

The period immediately subsequent to the war was not favorable to the multiplication or growth of libraries; for, being among the outgrowths of an opulent and luxurious civilization, we could hardly look for their increase amid the poverty and financial revulsions which continued till nearly the close of the last century. Between 1783 and 1800, ten colleges and one theological seminary were founded, and some of them —as, for instance, Bowdoin, Georgetown, D. C., Williams, Dickinson, Transylvania, and the University of North Carolina—now possess respectable libraries, but they have been mainly accumulated within the last forty years. Of other libraries, we can find no record of even one, of any importance, founded in this period.

In the period between 1800 and the close of the war of 1812, there were five colleges and two theological seminaries organized, all of which now have libraries of considerable importance. To this period also belong the beginnings of the Boston Athenæum, now the fourth library in the country in the number of its volumes, the first library of Congress, which was destroyed by the British in 1814, the noble collection of the New York Historical Society, and the commencement of the special libraries of the American Antiquarian Society at Worcester, and the American Academy of Natural Sciences at Philadelphia.

The war of 1812 was followed by a period of severe financial distress, and it was not till about 1818 that any considerable efforts were made for the establishment of libraries. Between 1818 and the present time, not only have more than one hundred colleges been organized, each of which has a library

of some size, and many of them from 10,000 to 25,000 volumes, but there have also been established more than twenty theological seminaries, with considerable collections of books; most of the state libraries, beginning with the valuable State Library at Albany, of over 50,000 volumes, the Congressional, Astor, Smithsonian, Boston Public Library, and other free libraries; most of the libraries of the learned societies, and the extensive collections of the historical societies, three or four proprietary libraries of some note, all of the subscription libraries, known as mercantile, institute, mechanics', or apprentices' libraries, and those connected with young men's Christian associations and with churches. Within the same period also, and mainly within twenty years past, great numbers of special libraries—scientific, commercial, agricultural, mining, humanitarian, or devoted to the promotion of particular departments of art or literature—have been founded, while in all the states Sunday School libraries, and in many of them school-district, town, and academical libraries have been formed. Prior to 1840, there were many instances in which writers who desired to investigate certain periods of history, or certain sciences or arts, were compelled to visit Europe in order to procure from the great libraries of England or the continent the necessary facts. The necessity for this is now nearly obviated. The great libraries of Cambridge, Boston, New York, Philadelphia, and Washington, though neither of them so complete as they should be, yet together furnish material for the preparation of works in most departments of science, literature, or art, and they are every year becoming more and more full in the topics heretofore deficient.

The best free library in this country, and the largest, is the Astor Library of New York. It was founded by the bequest of $400,000 by John Jacob Astor, of which $75,000 was to be appropriated for the building, $120,000 for the first purchase of books, and the remainder invested, and the interest applied to the management and increase of the library. The original building, with its furniture and shelving, opened in 1854, cost about $120,000, the excess over $75,000 being from accrued interest. The $120,000 expended for books purchased about 80,000 volumes. The shelf-room (13,000 feet) being likely to prove insufficient for the wants of the library, William B. Astor, Esq., the son of the founder of the library, purchased a lot adjoining the north side of the library, 80 by 120 feet, and erected an additional building, somewhat larger than the original one, which he presented to the trustees. Mr. Astor has also, at different times, made considerable donations for the purchase of books. The present number of volumes in the library is somewhat more than 120,000, nearly all acquired by purchase. In his long and careful bibliographical preparation for purchasing this library, in his judicious selections, and careful expenditures, Dr. Cogswell, the librarian-in-chief, has established a claim to the gratitude of all scholars.

The library of Harvard University has grown up since 1764, when the original library was destroyed by fire, by numerous donations of books, and, in quite a number of instances, of entire libraries, as well as by donations and bequests of money from friends. These donations and bequests cannot fall much short of $150,000, and it has now a fund of $26,000, the interest of which is applicable to the purchase of books, and the sum of $5000 per year, for five years from 1859, pledged by William Gray, Esq., to be applied to the same purpose. The various collections of books in Gore Hall (the library building) include not only the college library proper, but also the society libraries, and the libraries of the divinity, law, and medical schools. The whole number of volumes is about 125,000, but the library is very miscellaneous in character, and incomplete in certain departments. The considerable sums it now has at command for purchases are applied to make good its deficiencies as far and as fast as possible.

The Boston City Library, a free public library, now ranks third in this country. It was founded in 1848, in accordance with a law of Massachusetts providing for the establishment of town libraries. Hon. Josiah Quincy, jr., then mayor of the city, gave $5000 toward it; Mr. Bigelow gave $1000; Mr. Everett and Mr. Winthrop, large donations of books; Mr. Joshua Bates, of London, $50,000, besides several thousand volumes; Mr. Jonathan Phillips, $10,000; and others, smaller sums. The building, erected at a cost of $363,000 by the city of Boston, is one of the finest library rooms in the world. The present number of volumes is a little more than 100,000, and is increasing at the rate of 8000 volumes per annum. During the present year (1861) also, it will

BOSTON CITY LIBRARY. EXTERIOR.

BOSTON CITY LIBRARY. INTERIOR.

receive the fine library bequeathed to it by the late Theodore Parker, consisting of nearly 18,000 volumes.

The Boston Athenæum ranks fourth in the number of its volumes, is peculiarly rich in the transactions of learned societies, and has a considerable portion of General Washington's library. It has now about 75,000 volumes, and has cost for its building and books full $300,000. Though a proprietary library, it is practically free to the public for consultation. It was founded in 1806, but its principal growth has been within the last twenty-five years.

The library of Congress, which was nearly destroyed by fire in 1851, has since been restored and largely increased. The purchases being made under the direction of a committee of the two Houses, comprising their most eminent scholars, are judicious, and the library, which contains about 65,000 volumes, is one of the best for reference and consultation in the country. The library of the House of Representatives, also in the Capitol, contains about 40,000 volumes.

The Philadelphia Library Company and Loganian Collection is another of the proprietary libraries which are accessible to the public for consulting purposes free of charge. Though founded 130 years ago, its growth has been mainly achieved during the present century. In 1800, it contained only 7000 or 8000 volumes, while its present number is about 70,000.

The New York Mercantile Library is the largest of the subscription and lending libraries which are found in most of the considerable towns of the United States. It possesses a fine edifice in Astor Place, which cost nearly $240,000, and the rent of that portion of the building not occupied for library purposes and reading-rooms, will give it, when its debt is liquidated, a considerable annual fund in addition to its receipts for membership. Its reading-room is the largest in the country, though the free reading-room of the Cooper Institute very nearly approaches it. Its library, though intended mainly for popular readers rather than scholars, contains a very considerable collection of valuable works of reference. Its present number of volumes is about 60,000.

The New York State Library at Albany is by far the largest of all the state libraries, and is especially valuable for its fine collection of works on American history and on the natural sciences. It was founded in 1818, but its principal increase has been since 1845, at which time the Warden collection of works on America was purchased and incorporated in the library. The late Dr. T. Romeyn Beck superintended it for many years, and to his judicious purchases it is indebted for much of its value. Its present number of volumes is not far from 55,000.

The library of the Smithsonian Institution at Washington, though not so large as some others, numbering little more than 35,000 volumes, is a very valuable collection. The aim of Dr. Henry, the secretary of the institution, has been to make it particularly full in those departments in which other libraries are deficient. Its books are loaned to eminent scholars at a distance, when needed for the preparation of works of importance. By a law of Congress it receives a copy of all copyright books in the country.

The American Antiquarian Society at Worcester has an exceedingly valuable collection on American antiquities. Founded in 1812, by the late Isaiah Thomas, who was for twenty years its president, and who gave it about 9000 volumes, it has now about 26,000 volumes, many of them unique in this country.

The New York Historical Society, founded in 1804, has a very valuable library of about 30,000 volumes, mainly confined to American history and literature; a museum of American relics and antiquities; a large picture gallery; and has recently purchased the fine collection of Egyptian antiquities procured by the late Dr. Abbott.

The American Academy of Natural Sciences at Philadelphia has a museum of natural history of nearly 30,000 specimens, and a library of about 27,000 volumes, more complete in natural history than any other, and also containing a very full collection of the revolutionary literature of France, presented them by Mr. William Maclure.

Two other foundations for libraries are deserving of notice: that of George Peabody, Esq., for the Peabody Institute at Baltimore, which contemplates a library in connection with a gallery of the fine arts, a musical conservatory, etc., the entire endowment amounting to $500,000; and that of the late David Watkinson, of Hartford, Connecticut, who left, in 1857, the sum of $100,000 to found a library of reference in connection with the Connecticut Historical Society, and also made that library his residuary legatee.

These are the most remarkable public libraries of the country. There are, according

to the latest returns, 3 libraries containing over 100,000 volumes each; 9 containing over 50,000 volumes each; 19 containing 30,000 volumes or more; 26 containing 25,000 volumes or more; 41 containing over 20,000; and 120 containing 10,000 or more.

The total aggregate of volumes in college, state, national, proprietary, subscription, free, and town libraries, is not far from 3,800,000, and is increasing with great rapidity.

There are, besides these, in many of the states, school-district and academic libraries, containing a very large aggregate amount of books. In the state of New York, the number of volumes in the academic libraries reporting to the Board of Regents exceeds 125,000; and the number of volumes in the common-school libraries exceeds 1,500,000. Massachusetts, New Hampshire, Connecticut, Ohio, Michigan, Indiana, Illinois, Wisconsin, and Iowa, also make provision for such libraries, and have large numbers of them. The latest school returns indicate that the number of volumes in this class of libraries is not far from 4,000,000.

Another class of libraries, containing in the aggregate a vast number of volumes, and in many cases works of considerable size and value, are the Sunday School libraries. Few of these contain less than 200 volumes, and many of them have 1000 or more. More than 4000 different works have been published for these libraries within a few years past by the publishing societies and private publishers, and large drafts are also made by the larger schools on English publications and those intended for adults. Estimating the number of these schools at 35,000, or about two thirds the number of churches (an estimate considerably below the truth), and the volumes in each library at 200, we have an aggregate of 7,000,000 volumes collected in these humble libraries.

As might be expected, the rapid growth of public libraries has stimulated gentlemen of wealth and intellectual tastes to collect private libraries of considerable extent, and in many cases devoted to some specialty. Perhaps the largest of these private collections is that of James Lenox, Esq., of New York, which is especially rich in early works and in Bibles.

One of the most singular is that of John Allan, Esq., of the same city, which contains a very considerable collection of books which have been interleaved and illustrated by the collector, with choice engravings of the persons or events described, often to the number of some hundreds in each volume.

There are in the city of New York alone not less than 25 private libraries containing more than 10,000 volumes each, and in Boston a still larger number. Philadelphia has also many very choice private libraries.

Some of these private collections are very complete on American local history. Noticeable among these are the libraries of Peter Force, Esq., of Washington, D. C.; George Brinley, Esq., of Hartford, Connecticut; George W. Greene, of Providence, R. I.; and Messrs. George Bancroft, J. C. Brevoort, W. J. Davis, H. C. Murphy, William Menzies, and J. R. Brodhead, of New York. The library of Hon. Henry Barnard, at Hartford, Connecticut, is more complete on the subject of education than any other in the country; that of W. Parker Foulke, Esq., of Philadelphia, is very full on prisons and prison discipline, and that of S. Austin Allibone, Esq., of the same city, on English literature and criticism; that of David N. Lord, of New York, on ecclesiastical and polemic literature; that of Professor Charles Anthon, of the same city, contains a fine collection of classics and works on classical literature; that of G. W. Pratt, also of New York, on Oriental languages and literature; that of C. L. Bushnell, on numismatics; that of J. A. Stevens, jr., on the literature of the Middle Ages; those of Messrs. W. P. Chapman and R. G. White, on dramatic and especially Shakspearian literature; that of D. W. Fiske, on Scandinavian literature; that of George Folsom, on history and geography; that of R. M. Hunt, on architecture; and those of Archbishop Hughes, Rev. Dr. Forbes, Rev. Dr. Hatfield, and Rev. Dr. Bethune, on theology, ecclesiastical biography, and patristic literature.

There are in connection with many of our benevolent and humane institutions special libraries containing a few hundred or thousand volumes devoted to the particular work of those institutions. Thus, the American Asylum for the Deaf and Dumb, at Hartford, and the New York Institution for the Deaf and Dumb, have each a very considerable collection of works on deaf mute instruction; the American Bible Society has a fine collection of Bibles in all languages; and the American Bible Union, a valuable collection of works on biblical criticism and exegesis, procured for the use of its translators. The collection of books of reference

procured for the use of the editors of the New American Cyclopædia is very extensive and complete, surpassing, in these particulars, any library in the country.

The following table gives the name of every considerable public library in the United States, and its number of volumes, according to the latest reports:—

PRINCIPAL PUBLIC LIBRARIES IN THE UNITED STATES, WITH THE NUMBER OF VOLUMES IN EACH IN 1860, AS NEARLY AS CAN BE ASCERTAINED.

I.—LIBRARIES OF COLLEGES, THEOLOGICAL SEMINARIES, ETC.

*Colleges.**

When founded.	Name.	Location.	No. of volumes.
1638,	Harvard College	Cambridge, Mass.	125,000
1692,	William and Mary	Williamsburg, Va.	53,000
1700,	Yale College	New Haven, Conn.	67,000
1746,	College of New Jersey	Princeton, N. J	24,000
1749,	University of Pennsylvania	Philadelphia, Penn	5,100
1757,	Columbia College	New York City, N. Y.	20,000
1768,	Brown University	Providence, R. I.	37,000
1769,	Dartmouth College	Hanover, N. H.	34,000
1770,	Rutgers College	New Brunswick, N. J.	12,000
1781,	Washington College	Lexington, Va.	6,500
1783,	Dickinson College	Carlisle, Penn.	24,000
1784,	St. John's College	Annapolis, Md.	8,000
1785,	Charleston College	Charleston, S. C.	5,200
1785,	Franklin College	Athens, Ga.	18,500
1789,	Hampden Sidney College	Prince Edward's Co., Va.	7,200
1789,	University of North Carolina	Chapel Hill, N. C.	21,000
1791,	University of Vermont	Burlington, Vt.	13,000
1792,	Georgetown College	Georgetown, D. C.	36,000
1793,	Williams College	Williamstown, Mass.	20,000
1794,	Bowdoin College	Brunswick, Me.	27,500
1795,	Union College	Schenectady, N. Y.	16,000
1798,	Transylvania University	Lexington, Ky	14,000
1800,	Middlebury College	Middlebury, Vt.	14,000
1801,	University of South Carolina	Columbia, S. C.	24,000
1802,	Jefferson College	Cannonsburg, Penn.	10,000
1804,	Ohio University	Athens, Ohio	5,300
1806,	University of East Tennessee	Knoxville, Tenn.	8,500
1806,	University of Nashville	Nashville, Tenn.	10,000
1809,	Miami University	Oxford, Ohio	8,500
1812,	Hamilton College	Clinton, N. Y.	13,000
1817,	Allegheny College	Meadville, Penn.	10,000
1819,	University of Virginia	Charlottesville, Va.	30,000
1819,	St. Joseph's College	Bardstown, Ky	9,000
1820,	Waterville College	Waterville, Me.	10,000
1821,	Columbian College	Washington, D. C.	8,000
1821,	Amherst College	Amherst, Mass.	26,000
1823,	Centre College	Danville, Ky.	6,000
1825,	Trinity College	Hartford, Conn.	14,000
1825,	Hobart Free College	Geneva, N. Y.	14,000
1826,	Kenyon College	Gambier, Ohio	14,000
1826,	Western Reserve College	Hudson, Ohio	9,000
1830,	Spring Hill College	Spring Hill (near Mobile), Ala.	7,500
1831,	University of Alabama	Tuscaloosa, Ala.	12,000
1831,	University of New York	New York, N. Y.	5,000
1831,	Wesleyan University	Middletown, Conn.	13,000
1832,	Pennsylvania College	Gettysburg, Penn.	11,000
1832,	Denison University	Granville, Ohio	5,200
1832,	Randolph-Macon University	Boydon, Va.	8,000
1832,	Hanover College	South Hanover, Ind.	5,600
1832,	St. Louis University	St. Louis, Mo.	22,000
1833,	Wabash College	Crawfordsville, Ind.	10,000
1833,	Delaware College	Newark, Del.	10,000
1835,	Marietta College	Marietta, Ohio	16,000
1835,	McKendree College	Lebanon, Ill.	5,800
1836,	Franklin and Marshall College	Lancaster, Penn.	19,000
1837,	University of Michigan	Ann Arbor, Mich.	10,000

* Those containing less than 5000 volumes are not noticed.

When founded.	Name.	Location.	No. of volumes.
1837,	Indiana Asbury University	Greencastle, Ind	10,000
1838,	Wake Forest College	Forestville, N. C	5,200
1838,	Emory and Henry College	Washington Co., Va	9,000
1840,	Davidson College	Mecklenburg Co., N. C	6,000
1840,	St. John's College	Fordham, N. Y	16,000
1840,	Mercer University	Penfield, Ga	9,000
1840,	Georgetown College	Georgetown, Ky	7,000
1842,	St. James's College	Washington Co., Md	10,000
1842,	Ohio Wesleyan University	Delaware Co., Ohio	10,500
1843,	Holy Cross	Worcester, Mass	6,500
1845,	Centenary College	Jackson, La	6,500
1845,	Wittenberg University	Springfield, Ohio	6,500
1846,	Madison University	Hamilton, N. Y	8,000
1847,	St. Mary's College	Wilmington, Del	6,000
1848,	Free Academy	New York	15,000
1848,	State Normal School	Albany, N. Y	8,000
1848,	University of Mississippi	Oxford, Miss	5,000
1849,	Lawrence University	Appleton, Wis	15,000
1850,	Rochester University	Rochester, N. Y	5,500
1854,	Tufts' College	Somerville, Mass	8,000
1857,	Loyola College	Baltimore, Md	20,000
	Santa Clara College	Santa Clara, Cal	10,000
	Theological Seminaries.		
1784,	Theological Seminary Reformed Dutch Church	New Brunswick, N. J	7,000
1791,	St. Mary's Theological Seminary	Baltimore, Md	10,000
1808,	Andover Theological Seminary	Andover, Mass	21,500
1812,	Princeton Theological Seminary	Princeton, N. J	11,000
1816,	Divinity School	Cambridge, Mass	8,700
1816,	Bangor Theological Seminary	Bangor, Me	10,500
1817,	Episcopal General Theological Seminary	New York	12,000
1820,	Hamilton Theological Seminary	Hamilton, N. Y	8,000
1821,	Auburn Theological Seminary	Auburn, N. Y	6,000
1821,	South-Western Theological Seminary	Marysville, Tenn	6,000
1822,	Episcopal Theological School	Fairfax Co., Va	7,500
1825,	Newton Theological Institution	Newton, Mass	5,500
1825,	Wittenberg Theological Seminary	Gettysburg, Penn	10,000
1825,	German Reformed Theological Seminary	Mercersburg, Penn	6,000
1827,	Theological Department Kenyon College	Gambier, Ohio	6,500
1828,	Western Theological Seminary	Alleghanytown, Ohio	10,000
1828,	Theological Seminary	Columbia, S. C	17,500
1829,	Lane Seminary	Cincinnati, Ohio	11,000
1832,	New Albany Theological Seminary	New Albany, Ind	4,000
1834,	Theological Institute	East Windsor, Conn	5,000
1836,	Union Theological Seminary	New York	18,000
1844,	Western Theological School	Meadville, Penn	8,000
1850,	Rochester Theological Seminary	Rochester, N. Y	6,000
	Medical Schools and Hospitals.		
1755,	Pennsylvania Hospital Library	Philadelphia, Pa	11,000
1765,	Medical Department Pennsylvania University	" "	5,000
1791,	New York Hospital Library	New York	7,000
1807,	New York College of Physicians and Surgeons	"	1,800
1831,	University Medical School	"	4,500
	Law, Schools and Libraries.		
1817,	Dane Law School	Cambridge, Mass	14,000
1845,	New York State and National Law School	Poughkeepsie, N. Y	3,000
	New York Law Library	New York	6,500
	Social Law Library	Boston	6,000
1802, 1841,	Law Association	Philadelphia	5,000
	II.—STATE LIBRARIES.		
1770,	New Hampshire State Library	Concord	6,500
1816,	Pennsylvania " "	Harrisburg	15,500
1817,	Ohio " "	Columbus	18,500
1818,	New York " "	Albany	55,000
1824,	New Jersey " "	Trenton	9,000
1825,	Indiana " "	Indianapolis	20,000

When founded.	Name.	Location.	No. of volumes.
1826,	Maryland State Library	Annapolis	22,000
1826,	Massachusetts " "	Boston	13,000
1828,	Virginia " "	Richmond	18,000
1829,	Missouri " "	Jefferson City	8,000
1834,	Kentucky " "	Frankfort	10,000
1836,	Maine " "	Augusta	17,000
1836,	Wisconsin " "	Madison	7,500
1848,	Connecticut " "	Hartford	7,500
	Tennessee " "	Nashville	9,000
	Mississippi " "	Jackson	8,000
	Louisiana " "	Baton Rouge	10,000
	North Carolina " "	Raleigh	7,000
	California " "	Sacramento	14,000
	III.—PUBLIC OR ENDOWED LIBRARIES.		
1707,	Redwood Library	Newport, R. I.	4,500
1800, 1815, 1851,	Library of Congress	Washington, D. C.	65,000
	Library of House of Representatives	" "	40,000
	Library of State Department	" "	18,000
	Library of War Department	" "	10,000
	Copyright Library	" "	13,500
	Library of Patent Office	" "	10,000
1839,	Astor Library	New York	120,000
1848, 1852,	City Public Library	Boston	100,000
1849,	Smithsonian Institution	Washington, D. C.	35,000
1838,	National Institute	" "	5,000
1852,	Free Library	New Bedford, Mass	13,000
1857,	Watkinson Library	Hartford	
	Bowditch Library	Boston	3,000
	United States Mint	Philadelphia	2,500
	Graham Institute Library	Brooklyn, N. Y.	10,000
	IV.—LIBRARIES OF LEARNED SOCIEITES.		
1742,	American Philosophical Society	Philadelphia, Penn	26,000
1812,	American Antiquarian Society	Worcester, Mass	26,000
1812,	American Academy of Natural Sciences	Philadelphia	27,000
	American Academy of Arts and Sciences	Boston	9,500
	American Oriental Society	New Haven	2,000
	American Geographical and Statistical Society	New York	3,000
	American Natural History Society	Boston	6,500
1824,	Franklin Institute	Philadelphia	6,000
	American Institute	New York	8,000
	New England Genealogical Society	Boston	14,000
	Lyceum of Natural History	New York	3,000
	V.—LIBRARIES OF HISTORICAL SOCIETIES.		
1804,	New York Historical Society	New York	30,000
	Maryland " "	Annapolis	20,000
	Massachusetts " "	Boston	8,000
	Connecticut " "	Hartford	11,000
	Georgia " "	Milledgeville	8,000
	New Jersey " "	Newark	2,500
	Ohio " "	Columbus	2,000
	Wisconsin " "	Madison	4,500
	Chicago " "	Chicago	7,500
	VI.—PROPRIETARY LIBRARIES.		
1731,	Library Company and Loganian Collection	Philadelphia	70,000
1748,	Charleston Library Society	Charleston, S. C.	25,000
1753, 1831, 1836,	Athenæum	Providence, R. I.	23,000
1754,	Society Library	New York	44,000
1760,	Athenæum	Salem, Mass	14,000
1765,	Athenæum	Portland, Me	10,000
1806,	Athenæum	Boston, Mass	75,000

When founded.	Name.	Location.	No. of volumes.
1813,	Athenæum	Philadelphia, Penn	15,000
1817,	Athenæum	Portsmouth, N. H.	9,000
	Library Company	Baltimore, Md.	17,500
	Library Society	Boston, Mass.	16,000
	VII.—MERCANTILE, INSTITUTE, LYCEUM, ETC., LIBRARIES.		
	Membership and library privileges secured by a small annual, semi-annual, or quarterly subscription.		
1820,	Mercantile Library	New York	60,000
1820,	Mercantile Library	Boston, Mass.	22,500
	Apprentices' Library	New York	30,000
1819,	Apprentices' Library	Philadelphia, Pa.	18,000
1821,	Mercantile Library	" "	16,000
1835,	Mercantile Library	Cincinnati, O.	24,000
1838,	Young Men's Institute	Hartford, Ct.	15,500
	Young Men's Institute	New Haven	12,000
	Mercantile Library	Baltimore, Md.	16,000
1846,	Mercantile Library	St. Louis, Mo.	15,000
	Mercantile Library	Portland, Me.	2,500
1858,	Mercantile Library	Brooklyn, N. Y.	16,500
	Mercantile Library	San Francisco, Cal.	12,000
	Apprentices' Library	Boston, Mass.	6,000
	Apprentices' Library	Charleston, S. C.	14,000
	Mechanics' Institute	New York	4,000
	Mechanics' Institute	Chicago, Ill.	5,000
	Mechanics' Institute	Cincinnati	13,000
1860,	Women's Library	New York	6,000
	VIII.—PUBLIC AND HIGH SCHOOL AND SEMINARY LIBRARIES.		
	High School Library	Providence	21,000
	Public School Library	New Orleans	11,000
1839,	Central High School	Philadelphia	2,000
1853,	Central High School	Cincinnati	14,000
	United States Military Academy	West Point, N. Y.	17,500
	United States Naval Academy	Annapolis, Md.	8,000
	Spingler Institute	New York	3,000
	Rutgers Institute	" "	3,500
	IX.—MISCELLANEOUS LIBRARIES.		
1817,	American Asylum for Deaf and Dumb	Hartford, Ct.	1,800
1848,	New York Institution for Deaf and Dumb	New York	4,500
1815,	American Bible Society	" "	2,000
	American Bible Union	" "	5,000
	American and Foreign Bible Society	" "	1 600
1822,	American Board C. F. Missions	Boston	6,000
	German Society	Philadelphia	12,000
	Orthodox Friends' Library	"	6,000
	Hicksite Friends' Library	"	5,000
	Boston Library	Boston	16,000
	Washington Library	Washington, D. C.	13,000
	Southwark Library Company	Philadelphia, Penn	10,000
	Wagner Free Institute	" "	8,000
	American Sunday School Union	" "	7,000
	Maryland Institute	Baltimore	12,000
	Congregational Library Association	Boston	4,500

CHAPTER XX.

LYCEUMS, MECHANICS' INSTITUTES, YOUNG MEN'S INSTITUTES, ART UNIONS, ETC.

THE name of *Lyceum* is one of ancient origin, having been first bestowed on the place where Aristotle gave his instructions, from its connection with the temple of Apollo Lycius. In more modern times it has been applied to schools where the philosophy of Aristotle was taught, and to institutions in which the instruction was given mainly by lectures. In 1786 it was given, in France, to an institution of the nature of a museum, at which daily lectures were delivered by La Harpe. This was discontinued in 1794, in consequence of the French Revolution. During the present century the

name has been applied in France to collegiate schools answering very nearly to our colleges or public high schools.

The Conservatory of Arts and Trades at Paris, organized in 1796, by Vaucanson, is an example of the higher class of lyceum in its more extended sense. It has thirteen galleries of materials and machines, and courses of lectures, scientific and practical, which are largely attended during the winter by the working classes.

The origination of the lyceum as a means of mutual instruction in this country is due, in the first instance, to Benjamin Franklin. His "club for mutual improvement" was founded in Philadelphia in 1727, and after forty years' existence became the basis of the American Philosophical Society, one of the highest scientific societies on this continent. There may have been, and probably were, other societies for mutual improvement organized in different towns and cities of the country, during the hundred years that followed the organization of Franklin's club; but there are no records of any such in the possession of the public, previous to 1824, when Timothy Claxton, an English mechanic, succeeded in founding one, or rather in modifying a reading society, which had been in existence for five years, into what was really a lyceum, in the village of Methuen, Mass. Its exercises were weekly, and in the following order: the first week, reading by all the members; the second week, reading by one member selected for the purpose; the third week, an original lecture; the fourth week, discussion. In 1826, Mr. Josiah Holbrook, then of Derby, Conn., communicated to the *American Journal of Education*, then conducted by Mr. William Russell, his views on the subject of "*Associations of Adults for the Purpose of Mutual Education*," in which were contained the germs of the plan of the *Lyceum*, as subsequently developed by him in his lectures and publications. From the first, his views were of wider scope than the organization of a mere local association; they comprehended the establishment of such associations in every town and village, and their union, by representation, in county, state, and national organizations. They contemplated also, not only mutual instruction in the sciences, but the establishment of institutions for the education of youth in science, art, and morals; the collection of libraries, and of cabinets of minerals and other articles of natural or artificial production, to be increased and enlarged by mutual exchanges, by the different associations. Lectures and practical agricultural occupation, the results of which, it was supposed, would materially diminish the cost of instruction, also formed a part of his programme.

The first association formed in accordance with this plan was organized at Millbury, Mass., by Mr. Holbrook himself, in November of the same year, and was called "Millbury Lyceum, No. 1, Branch of the American Lyceum." Other towns soon after organized lyceums, and these were combined a few months later into the Worcester County Lyceum. Not long after, the Windham County, Conn., Lyceum, with its constituent town lyceums, was established; Rev. Samuel J. May, then of Brooklyn, Conn., rendering valuable assistance in the work.

From this time onward to his death in 1854, Mr. Holbrook devoted his whole energies in one way and another to the promotion of these institutions, and to such measures in connection with the cause of education as should promote mutual instruction in children as well as adults. By scientific tracts, by newspapers and other publications, by the manufacture of school apparatus, and by the collection of small cabinets of minerals, to serve as *nuclei* for larger cabinets, by scholars' fairs, by lectures, and long journeys, and by appeals to the members of Congress and of the state legislatures, he succeeded in rousing a powerful and continued interest in the subject of mutual instruction, which, if it did not accomplish all his own plans, at least gave a wonderful impulse to the general intellectual culture of the nation. The lyceums he founded have passed away, at least in their original form, but in their places, and in a great measure as an indirect result of his labors, we have in every considerable town or village debating societies, young men's institutes, mechanics' institutes, library associations—the three latter often with circulating libraries, courses of lectures, and classes for instruction in science, art, and languages, and often with schools attached for the instruction of the children of the members. We have also lecture foundations, either connected with our colleges or professional schools, or independent, in which courses of instruction in physical science, history, literature, or the laws of language, are communicated to popular audiences.

In rendering the scientific lecture a popu-

lar institution, our country is greatly indebted to the late John Griscom, LL.D., and Professor Benjamin Silliman, sen. Prof. Griscom delivered his first course of popular lectures on chemistry in New York city in the winter of 1808; they were largely attended, and were continued for a long series of years. Prof. Silliman commenced popular lecturing on the same subject in New Haven about the same time, in connection with his professional courses. He subsequently delivered popular courses of lectures on chemistry and on geology in most of the large cities of the country. Within the last fifteen or twenty years, Prof. Edward Hitchcock, of Amherst College, and several other eminent geologists, have given courses on geology to popular audiences. Prof. Guyot has lectured on physical geography; Messrs. Mann, Barnard, Page and others, on educational topics; Hon. George P. Marsh on language; Professor Lieber and others on commerce, and other prominent scholars on other subjects. The Lowell Institute at Boston, founded by the munificence of the Hon. J. A. Lowell, gives annually free courses of lectures to large audiences on the most important branches of moral, intellectual, and physical science, and from the liberality of its compensation to the lecturers, induces elaborate and conscientious preparation on their part, and the benefit of this preparation inures also to other audiences, to which these lectures are repeated. It has unfortunately been the custom for a few years past of the young men's institutes, mercantile library associations, and other institutions giving courses of lectures through the winter season, to select lecturers who would amuse rather than instruct their audiences, and hence this mode of public instruction has become gradually less and less efficient, and the chief advantages resulting from these institutions have been the use of their circulating libraries, and their classes of instruction and debate. A revolution, however, is now gradually taking place in this respect; lectures on physical science are more frequently incorporated in the courses, and the highest talent is employed in the illustration of these sciences. The lectures of Professors Doremus, Draper, and Silliman, jr., on chemistry; of Mitchel, Youmans, and Loomis on astronomy, and of Agassiz, Henry, and others on geology, have uniformly attracted large audiences, and have led to the study of these sciences.

The Smithsonian Institution, which combines some of the features of the lyceum, in its public lectures, classes, and museum, with its other objects, will be spoken of at length in another place. Its influence in promoting scientific research has been widely felt.

One of the noblest enterprises connected with this class of institutions is the Cooper Union of New York city. The founder with princely liberality has erected an immense building, occupying an entire block, of the most substantial character. A portion of this building is rented, and the proceeds of the rental go to sustain a free reading-room as extensive as any in the country, a picture gallery, a library, schools of design for male and female pupils, and classes for instruction in sciences, the mechanic arts, and languages, all of which have rooms and instruction free, under the most competent teachers. Courses of lectures on scientific subjects for the working classes also form a part of the plan of Mr. Cooper.

Mr. George Peabody has also made a most liberal endowment, amounting in all to about $600,000, for an institution at Baltimore, to include a public library, courses of lectures on science, art, and literature, prizes for scholarship in the high schools, an academy of music, and a gallery of art.

The number of institutions coming under the general head of lyceums in the United States, is very great; throughout the Northern states every city and every considerable town has some organization of the kind, all of them having their courses of lectures, and most of them debates, essays, readings, or classes of instruction. To them is attributable in no inconsiderable degree the very general prevalence of oratorical talent in our country, and that ability for impromptu argument and discussion, the faculty of "thinking on our legs," as an English writer not inaptly terms it. While much of the instruction communicated by lectures must necessarily be superficial, and is often wanting in accuracy, it cannot be denied that they have contributed much to the diffusion of general information and culture.

CHAPTER XXI.

INSTITUTIONS FOR THE INSTRUCTION OF THE DEAF AND DUMB.

The capacity of the deaf-mute to receive instruction was not generally acknowledged

anywhere till the latter part of the last century. Individual instances of education of those laboring under this infirmity had indeed occurred as early as the middle of the 16th century, and perhaps even at a still earlier date, but no considerable attempts had been made to instruct them previous to the efforts of Pereira, Heinicke, De l'Epée, and Braidwood, all of whom taught deaf and dumb pupils, between 1742 and 1760. Of these, Heinicke and De l'Epée alone are deserving of the honor of being reckoned the founders of a great philanthropic movement. The former attempted the instruction of deaf-mutes by teaching them to articulate; the latter by the manual alphabet, and a development of the natural language of signs. De l'Epée's processes were greatly improved by the Abbé Sicard, and Bebian, a pupil of Sicard.

Deaf-mute instruction was not attempted in this country till about the year 1816. In a few instances children of wealthy parents, suffering under this infirmity, had been sent to England for instruction by the Braidwoods, father and sons, who held in their own family the monopoly of deaf-mute teaching, though adopting substantially the processes of Heinicke, and who charged a very high price for the education of each pupil. The father of one of these American pupils, in a work entitled "*Vox oculis subjecta*," published in 1783, lauded in high terms the instruction of the Messrs. Braidwood.

In 1814, Rev. Thomas H. Gallaudet, a young clergyman of Hartford, Conn., became deeply interested in the case of Alice Cogswell, the little daughter of Dr. M. F. Cogswell, a neighbor of his, who had lost her hearing in infancy, and having devoted much thought and investigation to the subject of the number and condition of the deaf-mutes of that state, was desirous of doing something for their education. Dr. Cogswell and other benevolent gentlemen in Hartford furnished the means of sending him to England, to learn the art of teaching deaf-mutes, and he sailed from New York for Liverpool, May 25, 1815. Arrived in England he found the elder Braidwood dead, and the mother, sons, and other relatives, who had now established three schools, unwilling to enlighten him as to their processes, unless he would pay 1500 dollars, remain a year as an assistant in one of their schools, and take the grandson of the first Braidwood, a drunken vagabond, as a partner in the institution to be established in America. Rejecting these terms, as unworthy of the pioneers in a great benevolent enterprise, Mr. Gallaudet had almost determined to return home, when he met the Abbé Sicard in London, and was most cordially invited by him to come to Paris and acquire his methods of teaching, receiving from him the necessary private instructions to enable him to accomplish this object more rapidly. This generous offer was promptly accepted by Mr. Gallaudet, and after three months of close application he returned to America, bringing with him M. Laurent Clerc, an educated deaf-mute, and one of Sicard's most successful teachers. It was now determined to establish a school for deaf-mute instruction, as soon as the necessary funds could be obtained. For this purpose, Messrs. Gallaudet and Clerc travelled extensively through the Eastern and Middle states, everywhere receiving a warm welcome. In the spring of 1817, about $19,000 had been contributed and pledged, to which the Connecticut legislature subsequently added $5000 more.*

The school was opened in rented buildings, April 15, 1817, and chartered the same year by the legislature, under the name of "The New England Asylum for the Deaf and Dumb." An application was made to Congress for a grant, as it was supposed, in the general ignorance concerning the number of deaf-mutes, that one asylum would be sufficient for the whole country, and that body donated a township of land in Alabama, which, under wise and careful management, has produced a fund of over $300,000, the interest of which is applied to the reduction of the annual expenses of the institution, and enables the directors to furnish board and tuition to their pupils at the low price of $100 per annum. After the reception of this grant, the name of the institution was changed to "The American Asylum for the Deaf and Dumb."

Thomas Braidwood, the grandson of the founder of the first English school for deaf-mutes, to whom we have already referred, had come to Virginia as early as 1811, and had attempted to establish there a school for the deaf and dumb, but his habits were

* This sum was a few years later expended by the Asylum in the education of indigent deaf-mutes natives of Connecticut.

such that all the assistance offered him was of no avail, and after a time he returned to England; Mr. Gallaudet's efforts incited the family to make another trial, but he was so thoroughly a vagabond, that it again proved unsuccessful. M. Gard, a teacher of deaf-mutes at Bordeaux, and himself a deaf-mute, also offered to come to New York, in 1816, and establish an institution there, on the plan of Sicard, but the project fell through.

Meantime, philanthropic persons in New York city were desirous of establishing an institution for the benefit of the deaf-mutes of the city and state, and an act of incorporation for such an institution was passed on the 15th of April, 1817, the same day that the school at Hartford was opened. Among the most active promoters of this enterprise were Dr. Samuel Akerly, Dr. Samuel L. Mitchill, De Witt Clinton, Silvanus Miller, Peter Sharpe, and Rev. James Milnor, D.D.

The course of the American Asylum at Hartford was prosperous from the first. Mr. Gallaudet was a man of genius, and possessed the ability to originate and carry into effect new methods of instruction, and to modify the processes in use in the French schools. In these measures he was efficiently seconded by M. Clerc, and by a corps of young but able teachers whom he had gathered around him, and imbued with his spirit. Prominent among these were Messrs. William C. Woodbridge, Lewis Weld, Harvey P. Peet, John A. Jacobs, and William W. Turner.

The New York Asylum had adverse fortunes to contend with at first. It was opened in May, 1818. Its first principal was Rev. A. O. Stansbury, who had been for a few months previous the steward of the American Asylum, and was but imperfectly qualified for his duties; the greater part of the pupils were day scholars, and attended irregularly; the assistant teachers were half-educated deaf-mutes; an attempt was made to teach articulation, but it proved a failure. Mr. Loofborrow, who succeeded Mr. Stansbury in 1821, possessed intelligence and energy, but he had few competent assistants, and the state legislature which had made appropriations for the support of deaf-mute pupils, was becoming dissatisfied with the condition of the institution, as compared with those at Hartford and Philadelphia. In 1830, an entire change was effected. The asylum was located on Fiftieth street, where buildings were erected for it; day scholars were no longer admitted; the inefficient teachers were dismissed, and Mr. Harvey P. Peet, then one of the ablest of the teachers in the American Asylum, elected principal. Mr. Peet entered upon his duties in February, 1831, and though at first compelled to perform all classes of duties, his genius, tact, and indefatigable labor soon brought order out of chaos, and enabled him to place the institution in the very first rank. In 1853, the property of the institution on Fiftieth street was sold, the buildings being too small for the accommodation of their pupils, and being subject to encroachment from the rapid increase of population in their vicinity. A new location, comprising 37 acres, was purchased on Washington Heights, about nine miles from the City Hall, and overlooking the Hudson river. On this site a magnificent building has been erected, much the finest and most perfect in its arrangements of any asylum for deaf-mutes in the world. It has cost, including the grounds, nearly $600,000, and will accommodate about 500 pupils. Mr. (now Dr.) Peet is still at the head of it, and his eldest son, Mr. Isaac Lewis Peet, is the efficient vice principal.

The Pennsylvania Institution was organized at Philadelphia in 1820, by M. Laurent Clerc; and Mr. Lewis Weld, one of the teachers at the American Asylum, became its first principal. In 1830, Mr. Gallaudet resigned the charge of the American Asylum, and Mr. Weld was elected his successor, and was followed at Philadelphia by Mr. Abraham B. Hutton, also one of the teachers of the American Asylum. This school has enjoyed continuous prosperity. The Kentucky School is located at Danville, and was founded in 1823. Mr. J. A. Jacobs, who is still at its head, was its first, and has been its only principal. He too was one of the teachers at the American Asylum. It has a moderate endowment arising from the sale of lands granted to it by Congress. The Ohio Institution was established in 1829, and has had three principals—Messrs. Hubbell, Cary, and Stone. The first and last were from Hartford, the second from the New York Institution. The Virginia Institution, organized at Staunton, was the first in this country which combined the instruction of deaf-mutes and the blind in one institution. Such a combination is not uncommon in Europe, and five other asylums

AMERICAN ASYLUM FOR DEAF AND DUMB, HARTFORD, CONN.

have followed the example in this country. The best authorities, however, regard the plan as objectionable in many respects.

The other institutions for the instruction of deaf-mutes (there are in all twenty-three) have been organized since 1844. Most of them are state institutions, and though generally well managed, partisan politics have, in some instances, materially impaired their efficiency and usefulness.

Provision has been made, in nearly all the states, for the education of the indigent deaf and dumb, so that no person of suitable age, suffering from this infirmity, need go uninstructed, if they, or their friends, will apply to the state authorities; yet of the nearly 3000 deaf-mutes of school age in the United States, but about 2000 are under instruction. The greatest deficiency, however, is in the new states, and will be remedied in the course of a few years.

The term of instruction varies from six to ten years. Seven years is the usual term in most of the states; but in the American Asylum, the New York Institution, and, we believe, the Pennsylvania Institution, a high class has been established, into which those who give evidence of superior abilities, and desire for higher scholarship, are admitted by examination, and pursue an additional course of three years. The course of study, including this period of three years, embraces the topics of a very thorough English and mathematical education. Other languages than English are not usually taught. From these classes most of the deaf-mute teachers are now drawn.

The intellectual and moral condition of uninstructed deaf-mutes is one of extreme, almost rayless ignorance. Careful inquiry in some thousands of cases has demonstrated that, unless communicated by friends versed to some extent in the language of signs, they have no idea of a Supreme Being, of the origin of the objects of nature, of their own possession of a soul, of death, or a future existence. The mind is almost a blank, and the few thoughts they possess are merely such as concern their food, drink, and rest, and the objects with which they are constantly brought in contact. It is obvious, then, that the mental condition of a child of ten or twelve years of age, deaf from birth, and consequently dumb, is below that of a child of one year who can hear and speak. The child who possesses all its faculties has, before entering school, acquired a very considerable fund of ideas, and the words for their intelligent expression; so that the teacher has comparatively little occasion to communicate ideas to him, except on topics connected with his studies, and these he can clothe in words which the child already understands.

In the case of the deaf-mute, on the other hand, ideas, even on the most common and simple subjects, must be first communicated to him, and that not in words, for as yet these are entirely incomprehensible, but in the language of pantomime and gesture. He is next to be made to comprehend the laws of construction and connect words, either written, or spelled by the manual alphabet, with the ideas already acquired (a long and painful process,) and then, through the two *media* of words and signs, to be taught the elements of science.

The system of Heinicke and the Braidwoods, a system still, with some modifications, taught in Germany and some other European countries, had for its basis the dogma that ideas could only be expressed or communicated by means of words; and hence with great difficulty and pains, even in the flexible German tongue, the deaf-mute was taught to articulate words, whose meanings he did not understand, and then, as step by step he connected ideas with the simplest of them, these were made the means of conveying to him the meaning of those more abstract and difficult. In this way three or four years were consumed before the pupil was prepared to acquire the facts of science, or the knowledge of his moral obligations.

The plan of De l'Epée, modified by Sicard and Bebian, had little in common with that of Heinicke. Their fundamental principle was, that "words have no natural or necessary connection with the ideas of which they are the signs, and that in the natural language of signs or pantomime, improved and enlarged as it can be, there is a complete substitute for them." No attempt was made at teaching articulation, but words were taught by means of signs, and these once acquired, were made the medium of further instruction by ordinary text-books. In order to teach words more readily, M. Sicard introduced what he denominated *methodical signs*, that is, a peculiar gesture for each word, which the pupil was taught. It is obvious that if the vocabulary of the deaf-mute was to be as large as that of ordinary intelligent speaking persons, the number of these arbitrary signs (for it is to be understood that these differed almost as much from the ordinary signs as the latter from words, the natural signs representing ideas, and the methodical signs single words) must be very great, some thousands at least, and to retain them in memory was a very fatiguing task for both pupil and teacher.

The American system of instruction of deaf-mutes differs materially from both the preceding, and this difference originated partly with Mr. Gallaudet and the teachers trained up under him, and is partly the result of the experience and observation of the eminent teachers who have been, and still are, engaged in deaf-mute instruction.

In establishing the American Asylum, Mr. Gallaudet combined the principle of Heinicke, "first ideas, then words," with that of De l'Epée, that the natural language of signs must be elevated to as high a degree of excellence as possible, in order to serve as the medium for giving the ideas clearly and explaining them accurately; but he added to these another which had never before been applied to deaf-mute instruction, viz., that the process of learning words might be greatly facilitated by leading the pupils to reflect on their own sensations, ideas, and mental processes. With the earliest lessons he imparted in the names of sensible objects, he was accustomed to endeavor to open communication with them, by means of the sign-language, in regard to the feelings and emotions excited by these objects, and, if possible, to connect them with something in the pupil's past experience. From this, the deaf-mute was naturally led on to think of the feelings and emotions of others, thence, by a natural transition, to the idea of God as a Creator and benefactor, and finally to a knowledge of his law, and the final destiny of man. The result of this has been that pupils in this country (for this plan has been generally adopted in our American institutions) are made acquainted with the simple truths of religion and morality in one year, a period in which, in the European institutions, they have scarcely advanced beyond the knowledge of sounds and the names of sensible objects, qualities, and actions, or the most common phrases. Apart from the high religious importance of this process, it brings moral motives to bear earlier, and renders the government of the pupils easier, while it aids them in the formation of correct habits. The conducting of the daily and weekly devotional exercises in the sign-language was another peculiarity introduced by Mr. Gallaudet.

Methodical signs were used to a considerable extent by Mr. Gallaudet and the earlier instructors of American institutions, but were

not regarded as so indispensable by them as by the French teachers. Of late years they are less employed than formerly, and are made to indicate phrases rather than words, while the manual alphabet is regarded as of more value in teaching than it was thirty years ago. An advance has also been made, of great importance, by the introduction, by Mr. I. Lewis Peet, of the New York Institution, of manual and written symbols for those ultimate constituents of the sentence which form so considerable a portion of spoken and written language. By this means written language is taught with much greater facility than formerly. The establishment of high classes has also been an important step in the progress of deaf-mute education, furnishing, as it does, the deaf and dumb the opportunity of attaining to as high intellectual culture as those enjoy who are in the possession of all their faculties.

In 1850, the number of deaf-mutes in the United States was 9803, or one in 2345.

Some of the educated deaf and dumb in this country have attained to considerable distinction. Laurent Clerc, the companion of Gallaudet, belongs by his birth and education rather to France than America, yet he has passed more than forty years in this country, and though now retired in a healthful and happy old age, from active duty, is deservedly esteemed and honored. Thomas Brown, the President of the American Association of Deaf-Mutes, is a vigorous and able writer, as are also John T. Burnett and James Nack. The latter has distinguished himself as a poet of no mean ability, and the former has been a frequent and welcome contributor to several of our ablest reviews. Mrs. Mary Toles Peet, the wife of the accomplished vice principal of the New York Institution, though young, is entitled to a very high rank among the most gifted of our female poets. Colonel David M. Phillips, of New Orleans, in spite of his infirmity, was for many years one of the most accomplished military officers of the South. John Carlin, as an artist, and Albert Newsam, as an engraver, have few superiors in their respective professions. The monument to Mr. Gallaudet, designed by the former and engraved by the latter, is one of the most admirable and appropriate monumental structures. Mr. Levi S. Backus was for several years an able and successful editor of a periodical in central New York.

We present a table of the deaf and dumb institutions of the country, with their statistics to the present year (1860). There is also a deaf-mute institution in California, and one erecting at Faribault, Minnesota.

CHAPTER XXII.

INSTITUTIONS FOR THE INSTRUCTION OF THE BLIND.

The instruction of the blind had never been attempted on any considerable scale, in any part of the world, till Valentin Haüy, in 1784, commenced in Paris, France, his school for blind pupils. Individuals who were blind had indeed educated themselves by the assistance of friends; but the great majority of those who suffered from this affliction were left to a life of dependence and depression, and often became beggars. The efforts of Haüy, and his invention of an embossed alphabet, to enable the blind to read, led to the foundation of a school for the blind, supported by the French government, in 1791, and to the organization of similar schools in England, Prussia, Austria, and Russia about the same period. In these schools, reading and music, and some of the simpler mechanic arts, such as knitting, mat-weaving, basket-making, etc., were taught.

The first attempts to establish schools for the blind in this country were made about 1830. Dr. J. D. Fisher, in 1829, obtained an act of incorporation for an institution for the instruction of the blind from the Massachusetts legislature, and in 1831 Dr. Samuel Akerley and Mr. Samuel Wood, a benevolent merchant in New York, in conjunction with some other gentlemen, made an application to the New York legislature for a similar act, which was granted. Soon after this movement was made, Dr. John D. Russ, who had just returned from a mission to Greece, whither he had borne the contributions of American citizens to the suffering Greeks, and who on his way home had visited some of the European blind institutions, identified himself with it, and eventually became the principal of the school for the blind in New York city, which was established in 1832, under the charter already named.

In Boston, Dr. Samuel G. Howe, who had also been actively engaged in the cause of the Greeks, and who, with Dr. Russ, had visited the European institutions for the blind, entered with great zeal upon the work of establishing a school for their instruction,

PENNSYLVANIA ASYLUM FOR THE BLIND.

and made a beginning, we believe, under Dr. Fisher's charter, in 1832. The liberal gift, by Colonel T. H. Perkins, of his valuable mansion house in Pearl street, Boston, to this school, on condition of the raising of $50,000 by the public, soon secured to the institution a liberal endowment.

The year succeeding, an institution for the blind was established in Philadelphia through the efforts of Messrs. Roberts, Vaux, and others, at the head of which was placed an intelligent and philanthropic Prussian, Mr. Julius Friedlander, who had been engaged in teaching the blind at Berlin, under the celebrated Zeuné.

The first efforts of the American instructors of the blind were devoted to the improvement of the alphabet of raised letters, used in printing for the blind, with a view to the preparation of books for them. There were considerable difficulties to be overcome in the accomplishment of this work; the letters must have salient angles; each letter must differ sufficiently from every other to be easily recognized by the touch; yet the size of the letters must be small, or the books printed for the blind would be too cumbrous and expensive. The forms of letters used in Europe did not answer these requirements satisfactorily. Haüy's type, if well embossed, could be read with tolerable facility, but it was much too large, and its size could not be reduced without impairing its legibility; Guillié's was not legible at all; Gall's varied too much from the ordinary form of letter to be desirable, and the other attempts at uniting the requisite qualities failed. Each of the three American superintendents devoted his leisure to the work. Mr. Friedlander devised an alphabet, known in England as the Allston or Sans-serif Alphabet, neat in form and easily read, but somewhat too large. Dr. Russ invented one combining the advantages of Gall's triangular alphabet with the Illyrian letter, and with characters to make it phonetic, but it was somewhat defective in legibility; and Dr. Howe, after repeated trials, constructed what is now known as the Boston letter, which in size, distinctness, and legibility so far surpassed every previous effort, that it has now come into general use in Europe and America. Two other subjects interested these American pioneers in the work of instructing the blind: the recognition by the state legislatures of the right of blind youth to the advantages of an education, and the extension of the course of study so far as to give their pupils a good English education, instructing them, at the same time, in such mechanic arts as might enable them to support themselves after leaving the institution.

At the time of the organization of these

schools, the institutions for the blind in Great Britain, and most of those on the continent of Europe, taught nothing but reading and the mechanic arts, except in the case of those who possessed musical talents, who received such instructions in music as would enable them to play upon the piano or organ, and to sing; but the ordinary branches of elementary education were entirely neglected. The American superintendents determined that their pupils should receive a good common-school education, and if possible something beyond this, and they have succeeded. The period of instruction varies in the institutions for the blind in the United States from five to eight years. In the larger and older institutions it is usually eight years, and includes a course of mathematics and belles-lettres as extensive as that in most of the colleges in the country, and a thorough course of musical training, both vocal and instrumental. The languages are not usually taught. There are now twenty-four of these institutions in the United States. The Ohio Institution at Columbus was founded in 1837, and that of Virginia at Staunton in 1839; the others have all been organized since 1842. To all these establishments there are attached work-rooms, in which the pupils are employed in the manufacture of mattresses, mats, baskets, paper boxes, brooms, brushes, or the simpler articles of cabinet work.

To many of the blind, music furnishes not only a recreation but a means of support. Their ear, long trained to the discrimination of sounds, and their touch, rendered delicate by the acquisition of the art of reading, give them peculiar facilities for the attainment of musical skill; and the concentration of their minds upon it, undisturbed by observation of what is passing around them, adds to their advantages. It is not, therefore, remarkable, that many of them should have attained to great eminence in musical science. The Pennsylvania Institution has been specially remarkable for the musical attainments of its pupils. Its weekly concerts are attended by from 1200 to 1500 of the music-loving inhabitants of that city, and the receipts from these concerts furnish a liberal fund to aid the poorer graduates in commencing an independent life. Many of these pupils find speedy and remunerative employment as organists, choir singers, members of orchestras or bands, or piano-teachers and tuners.

The great cost of printing books for the blind has rendered the supply scanty and the number of books small. The American Bible Society has printed an edition of the Scriptures in the Boston letter, and grants are made from time to time to institutions for the blind. The American Tract Society has also printed a few of its smaller books in the same letter. Aside from these, there are not more than fifty works printed for the blind in England and America, except a few in arbitrary characters, which of course are of no general value. Among these fifty is a cyclopedia to be completed in twenty volumes, but of which only eight or nine have yet been issued. Repeated applications have been made to the general government to make an appropriation either of money or lands, to furnish a fund for the establishment of a press for the blind, but the bills reported have always been defeated. Within the past year a "Printing House for the Blind" has been established at Louisville, Kentucky, endowed in part by private benefactions, and in part by appropriations from the several states. Its managers propose to go on in the manufacture of books for the blind, using the Boston letter, and making grants to the blind of each state in a ratio corresponding to the amount contributed by that state.

Owing in part to this paucity of books the educated blind seldom use the books in the raised letter subsequent to their graduation, except the Scriptures, but depend mostly upon the reading aloud of others for their information and instruction.

Writing has always been a difficult and irksome task to the blind; and various devices have been proposed to facilitate this labor, but hardly any of them have proved satisfactory. The plan adopted by the late William H. Prescott of using a frame of wires over the paper, enabled them to write in straight lines, but no corrections could be made, nor could the scribe read what he had written. The use of inks which would leave an elevated surface has been tried, but without much satisfaction; small printing machines have also been used, but are not convenient.

Within a few years past another process has been introduced, which, despite the apparent objections to it, proves far more serviceable and convenient than any other yet devised. By this invention, known as "Braille's system," from its inventor, M. Louis Braille, a French teacher of the blind,

they are soon enabled to read and write with great facility, and by the addition of a single character, music can be printed or copied by the blind far more readily than a seeing person can do it in the ordinary way. The plan is based upon a series of fundamental signs, comprising the first ten letters of the alphabet; none of these consist of less than two nor more than four dots. A second series is formed by placing one dot at the left of each fundamental sign; a third by placing two dots under each sign; a fourth by placing one dot under the right of each. These signs designate, besides the alphabet, the double vowels, peculiar compound sounds like *th*, and the marks of punctuation. By prefixing a sign consisting of three dots, the fundamental signs are used as numerals; by prefixing another the last seven represent musical characters, and by a sign peculiar to each octave the necessity of designating the key to each musical sentence is avoided.

The apparatus consists of a board, in a frame like that of a double slate, the surface of which is grooved horizontally and vertically by lines one eighth of an inch apart; on this the paper is fastened by shutting down the upper half of the frame, and the points are made with an awl or bodkin, through a piece of tin perforated with six holes, an eighth of an inch apart. The perforations are made from right to left, in order that the writing when reversed may read from left to right. Books and music are now printed for the blind on this system. Five or six of our larger institutions have adopted it.

Some of the blind institutions in this country have attached to them workshops for the adult blind, especially those who have graduated at these institutions, where certain advantages of shop-rent, machinery, material at wholesale prices, and in some instances board at a reduced rate, or a moderate pension, are allowed, by way of equalizing the difference between them and the working classes who possess all their faculties. In one instance, in Philadelphia, an asylum has been provided for the aged and infirm blind, where, beguiling the weariness of the passing hours by such light toil as they can readily accomplish, they may pass the evening of life in comfort and happiness.

The ratio of the blind to the entire population was, according to the last census, 1 to 2328, which would give not far from 13,000 as the present number in the country. Estimating one fifth of these as of school age, there should be 2600 in the different institutions. The number actually connected with them does not exceed 1300. As most of the states have made provision for supporting poor blind children at these institutions, a provision available on application to the governor or secretary of state, this number should be largely increased.

We have the testimony of some of the most eminent European teachers of the blind, that our larger institutions are superior to any of those in Europe in the thoroughness and extent of their teaching, and in the spirit of self-dependence with which they inspire their pupils. We insert a table giving a view of the present condition of the blind institutions in this country so far as can be ascertained. There is also an institution for the blind incorporated in California.

CHAPTER XXIII.

INSTITUTIONS FOR THE TRAINING OF IDIOTS.

These belong to the class of humanitarian efforts which have become so numerous during the past hundred years, and which have embraced in their scope the infirm, the orphan, the unfortunate, the vicious, and those who, from deprivation of one or more of their faculties, or feebleness of all of them, have become dependent upon others.

An effort is said to have been made by Vincent de Paul, one of the noblest and purest men in the Roman Catholic Church, more than two hundred years ago, to instruct a few adult imbeciles at the priory of St. Lazarus, in Paris, but with very slight success. The attempt was not repeated till 1818, when an idiot child, dumb from idiocy, was admitted as a pupil at the American Asylum for the Deaf and Dumb at Hartford. He was considerably improved during a residence of a year there; but not being properly a deaf-mute, and not being capable of going on with their classes, he was dismissed. He had, however, learned the sign-language sufficiently to be able to communicate his wants by it. Other imbeciles were subsequently, at various times, admitted to that and some other institutions for the blind and for deaf-mutes in this country prior to 1840. Most of these received some benefit from incidental instruction and intercourse with the pupils of these institutions. In Great Brit-

ain, as early as 1819, Dr. Richard Poole, of Edinburgh, published an Essay on Education, in which he urged the importance of attempting to educate and improve idiot children, and called for the organization of an institution for imbeciles. Efforts were made in France, from 1824 to 1838, by several eminent men, to instruct a few of these unfortunates, but with comparatively slight success. They were taught to imitate others in a few motions, and to repeat a few words by rote, but, left to themselves, soon relapsed into their previous hopeless condition. In 1838, Dr. Edward Seguin, a friend and pupil of the celebrated surgeon Itard, who had himself long contemplated the possibility of idiot instruction, commenced teaching a few idiot children in Paris. Unlike those who preceded him in this work, he had studied carefully, in all its bearings and relations, the subject of idiocy; and having become satisfied that it was only a prolonged infancy, in which the infantile grace and intelligence having passed away, there remained only the feeble muscular development and mental weakness of that stage of growth, he sought to follow nature in his processes for the development of the enfeebled body and mind. In these efforts he was far more successful than his predecessors. In 1846, he published his treatise on the Treatment of Idiocy, which is still the text-book of all teachers of imbeciles.

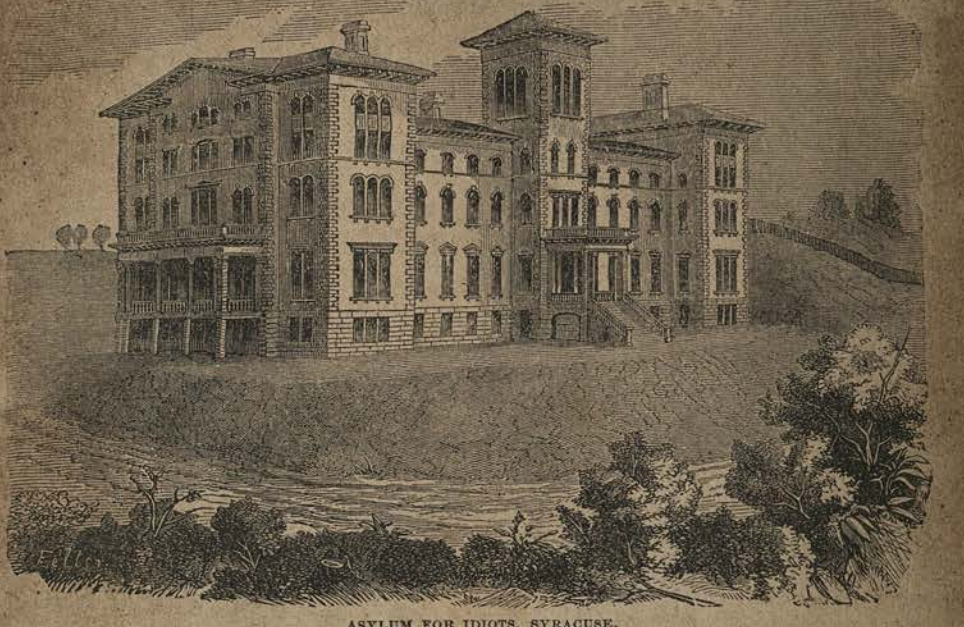
About the same time that Dr. Seguin commenced his school in Paris, a young Swiss physician of Zurich, Dr. Louis Guggenbühl, attempted with success the training of some Cretin* children, on the Abendberg, above Interlachen. The success of these two philanthropists led others in Prussia, Austria, the smaller German states, Sardinia, and England, to establish similar schools for the training of these hitherto neglected children.

The first movements for idiot training in this country were made almost simultaneously in New York and Massachusetts; that in New York having slightly the precedence, though the first schools were organized in Massachusetts. Dr. F. F. Backus of Rochester, elected to the state Senate of New York in the autumn of 1845, had become interested in the accounts of the schools of Seguin and Guggenbühl, and informing himself as fully as possible in regard to them, made a report to the Senate, in the session of 1846, accompanying it with resolutions providing for the establishment of a training school. These passed the two Houses, but were reconsidered and lost in the lower House. During the same winter, on the motion of Judge Byington, in the Massachusetts legislature, a commission was appointed, consisting of the mover, and Dr. S. G. Howe and Gilman Kimball, Esq., to investigate the condition of the idiots and imbeciles of the state. In 1848, as a result of the reports of this commission, the Massachusetts School for Imbecile and Feeble-minded Youth was chartered, but was not organized till October of that year. It is under the general superintendence of Dr. S. G. Howe. Meantime, in July, 1848, Dr. H. B. Wilbur, a young physician of Barre, Mass., had opened a private school for imbecile and backward children in that town. In 1851 an experimental Asylum for Idiots was established at Albany, N. Y., and Dr. Wilbur was appointed its superintendent. Three years later, this gave place to the New York State Asylum for Idiots at Syracuse, for which the state erected a noble edifice, and provided for the training of the indigent imbecile children of the state. In 1852, the Pennsylvania Training School for Idiots and Imbeciles was organized at Germantown, Penn.; but in 1859 it was removed to Media, Penn., where a large and well-provided asylum has been erected for it. It is under the care of Dr. Joseph Parish. In 1857, the Ohio State School for Idiots was established at Columbus, and Dr. R. J. Patterson took charge of it. The original school at Barre passed into the hands of Dr. George Brown when Dr. Wilbur removed to Albany, and still maintains its early efficiency. Besides this, there are two other private schools for imbeciles: one in New York, under the charge of Mr. J. B. Richards, who was formerly connected with the Massachusetts and Pennsylvania institutions, and one in Lakeville, Litchfield county, Conn., under the care of Dr. H. M. Knight, established in 1858.

Several of the other state legislatures have agitated the subject, and will, probably, eventually establish schools.

Of those already in existence, the asylum in Syracuse, of the state institutions, and that at Barre, of the private ones, have been the

* The Cretin is an imbecile whose physical degeneration is greater, though his mental condition is more hopeful, than that of the idiot. The disease, Cretinism, is supposed to be caused by the impregnation of the springs with magnesian salts, and is very common in mountainous districts.



ASYLUM FOR IDIOTS, SYRACUSE.

most successful, and, in the opinion of competent and unprejudiced judges, are superior to any of the European institutions. Dr. Seguin, the founder of the Paris school, has been in this country much of the time for twelve years past, and has rendered efficient service in the introduction of the best methods of instruction.

The processes employed in the training of idiots in our American institutions all grew out of Seguin's fundamental theory, "that idiocy is a prolonged infancy;" and the course pursued by nature in developing the infant into the healthy, robust, intelligent child, is closely followed. In many cases, the muscular system is feeble, and unequally and imperfectly developed; this is carefully invigorated by attention to diet, frequent bathing, and such exercise as shall strengthen the muscles, while subordinating them to the control of the will. The attention is fixed, and taught to distinguish form, size, and color by the presentation of objects of bright colors, and of varied form and bulk. The irregular muscular movements, often the result of habit, are controlled by gymnastic exercises with dumb-bells, ladders, etc., and by military exercises, which exact the attention and careful action of the hands, feet, head, and eye. Numbers are taught by the *object* method, and reading by the *word* system and the use of pictures. As in deaf-mute instruction, the effort is made, at the earliest possible moment, to direct the thoughts inward, to lead the child to watch and express his own feelings and emotions, and then to guide him to observe the emotions of others, and soon to learn something of his Creator, and his own moral nature and destiny. It is remarkable with what facility the simple truths of morality and religion are perceived, even by very weak intellects. Their progress in these is much more rapid than in intellectual studies; yet many of the pupils in the best institutions learn to read passably well, to write a good hand, and generally to spell correctly; become familiar with the principal facts of geography, with the elements of grammar, and arithmetic as far, perhaps, as compound numbers. A few make still greater progress, but these are the exceptions, not the rule.

It is, perhaps, too soon to decide very confidently what will be the results of idiot instruction; but this much is tolerably certain, that a proportion not exceeding one fourth, and these often apparently the worst cases when admitted, will become so far improved as to perform the ordinary duties of life and citizenship nearly as well as the masses generally; another fourth will improve so much as to be capable of working intelligently, under the supervision of others, but not of any considerable independent action—these will, under favorable circumstances, nearly or quite support themselves; another fourth will be greatly improved in their habits, and will require but little attention, though unable to do much toward their own support; while the remainder, though often, perhaps, as promising as any at first, will be little, if at all, improved.

The number of idiots and imbeciles in the country has never been satisfactorily ascertained, and in the nature of the case cannot be, from the reluctance of friends, in many cases, to admit their condition. Careful investigations made in some of the states, and in single counties in others, would indicate that here, as in Europe, the number is but little less than that of the insane, or, in round numbers, one in 600.

CHAPTER XXIV.

INSTITUTIONS FOR THE EDUCATION AND TRAINING OF ORPHANS.

Some of the Roman emperors and many of the bishops and pastors of the early Christian Church interested themselves in the care of orphans; but during the dark ages this as well as other charities was neglected and forgotten, and it was not till the sixteenth century that any attempts were made to establish orphan asylums. During the seventeenth century they became quite numerous both among Protestants and Roman Catholics, and few large towns were without one or more orphan houses. The Moravians in particular were specially tender of the fatherless, and in all their settlements of considerable size established houses for them. In the last years of the seventeenth century, August Hermann Franke established his orphan house at Halle, which still exists, and is one of the largest orphan asylums in the world.

In this country orphan houses were established by the Moravians in Pennsylvania and Georgia, early in the eighteenth century. In 1740 the celebrated George Whitefield laid the foundation of his orphan house at Bethesda, about ten miles from Savannah, Georgia. After many pecuniary difficulties it finally attained to a prosperous condition during his life, and he added to it an academy, and purposed, could a charter have been obtained, to establish a college in connection with it.

The number of orphan asylums established previous to the commencement of the present century was, however, very small. There were no very large cities, and it was only in the large cities that orphans unfriended were so numerous as to require considerable buildings for their shelter and domicile. In New York city the first orphan asylum grew out of the "Society for the Relief of Widows with Small Children," and owes its origin to the zeal and energy of the late Mrs. Joanna Bethune. It was founded in 1806, and at first it was attempted to place the children in families, but their number soon rendered this difficult, and after renting premises for a time they erected an asylum in Bank street, and in 1840 removed to their new edifice on the banks of the Hudson, between Seventy-third and Seventy-fourth streets. It is largely endowed.

Subsequently other institutions for orphans have been established in that city, some of them amply endowed either by legacies, or by the increased value of the property on which they were originally erected, while others are dependent, in part, on annual contributions, or on grants from the city treasury or Board of Education. There are now ten of these institutions in New York city and four in the adjacent city of Brooklyn, aside from the Home for the Friendless and other preventive and reformatory institutions, a large part of whose inmates are orphans; and aside, also, from the Randall's Island Nursery, where the last year about 1200 children—orphans, half orphans, or children of intemperate and criminal parents—were cared for. In all these institutions in the city of New York not less than 4000 children are domiciled.

There are now asylums for orphans in nearly every town of 10,000 inhabitants in the country, and in the larger cities there are usually several. Thus there are nine or ten in Philadelphia, three in Baltimore, and five in Boston. One of the most remarkable of

these, both on account of the magnificence of its edifice and the largeness of its endowment, is the Girard College for orphans at Philadelphia. It was founded by the bequest of a tract of land and two millions of dollars by Stephen Girard, a wealthy banker of that city. Mr. Girard left minute directions in his will in regard to the building and management of the charity. It is located on a lot comprising forty-one acres of land, surrounded by a wall ten feet in height. The grounds are laid out as play-grounds, gardens, grass-plots, etc. The buildings are all of marble. The principal one is in the form of a Corinthian temple, 169 feet long, 111 wide, and 97 high, and has a portico of thirty-four marble columns each 55 feet high. One of the smaller buildings is used as a laboratory, bakery, etc. The other four are each 125 feet long, 52 feet wide, and two stories in height. The whole cost of the buildings was $1,930,000. The officers are a president, secretary, two professors, five male and twelve female teachers, a physician, matron, assistant matron, and steward. The college was opened in January, 1848. As many poor white male orphans as the endowment can support are admitted, between the ages of six and ten years, fed, clothed, and educated, and between the ages of fourteen and eighteen bound out to mechanical, agricultural, or commercial occupations. No ecclesiastic, missionary, or minister of any sect whatever, is to hold any connection with the college or be admitted to the premises even as a visitor. The number of pupils on the foundation is a little over 350, and the annual expenditure about $60,000.

This is but one of several munificent foundations for orphans in that city. The Burd Orphan Asylum recently founded there for orphans between four and eight years of age, and primarily those of Episcopal parentage, has an endowment of about half a million dollars.

At Zelienople, Butler county, in western Pennsylvania, a farm school for orphans from Lutheran families, was established in 1854, and is under the charge of a superintendent trained to his work in the Institute of Brothers connected with the Rough House, Dr. Wichern's reformatory at Horn, near Hamburg. This is, so far as we are aware, the first distinct effort in this country to train orphan children distinctively to agricultural or horticultural pursuits.

The ordinary course of instruction in most of these institutions embraces the common branches of English education, and in many of them some mechanical pursuit is taught and practised for four or five hours each day. There is reason to believe that, in many cases, the mode of life and the regularity and formality of the course of training, has too much tendency to render the children *automata*, and unfit them to some extent for the hardships, the frequent changes, and the sudden temptations to which they are exposed after leaving the institutions. Where they are placed in private families while yet quite young, this evil is not so likely to follow as where they are retained, as they are in some asylums, to the age of sixteen.

No estimate, either of the amount permanently invested or of the annual current expenses of these institutions in this country, can be given, nor even any near approximation to an estimate. The permanent investment is to be reckoned by millions, and possibly by tens of millions; the annual expenditure in New York city alone, reaches nearly or quite half a million of dollars.

CHAPTER XXV.

PREVENTIVE AND REFORMATORY INSTITUTIONS.

ALTHOUGH there are occasional indications that individual philanthropists, like the benevolent Cardinal Odescalchi at Rome, and Sir Matthew Hale in England, had clear perceptions of the evil of leaving vagrant and morally endangered children as well as juvenile delinquents, exposed to the temptations to a vicious life, yet apart from a school established partially for them by the former in 1586, there seems to have been no serious movement in their behalf prior to the establishment of the school and home for vagrant and vicious boys at Rome, by Giovanni Borgi, (better known as Tata Giovanni, or Papa John,) in 1786 or 1787, and the organization of the "Philanthropic Society for the Prevention of Crime" at London in 1788. This last, originally established on the family plan, soon became a large establishment, in which a great number of boys were congregated and employed in different branches of manufacture, having also a probationary school of reform for the more vicious and criminal of its inmates. In 1846, the location was changed and the whole system

modified. A large farm was purchased at Red Hill, near Reigate, Surrey, agriculture and horticulture substituted for mechanical and manufacturing pursuits, and the family system for the congregated. Since that period the number of family reformatories, as they are called, has greatly increased in Great Britain. On the continent the eminent success of the agricultural and horticultural reformatories of Mettray, Horn, Ruysselede, and many others of more recent origin, has attracted general attention.

In this country the first institution intended for the reformation of vicious and criminal children, was the "New York House of Refuge for Juvenile Delinquents," incorporated in 1824 and opened January 1, 1825. Its founders were John Griscom, Isaac Collins, James W. Gerard, and Hugh Maxwell, all at the time members of a "Society for the Prevention of Pauperism and Crime," which had been formed in 1818. These gentlemen were aided and encouraged by others whose names appear on the list of corporators, and who were through life noteworthy for their hearty participation in works of philanthropy. The institution thus founded has had a steady growth, as the rapid increase of population in the city has been attended by a more than corresponding augmentation of the number of juvenile delinquents. At the end of thirty-six years from its first opening it occupies a tract of between thirty and forty acres on the southern end of Randall's Island, in the East River, and its colossal buildings, erected at an expense of not far from $450,000, furnish ample accommodations for school-rooms, lodging-rooms, dining-rooms, and workshops for 750 children, and actually hold in durance nearly 700.

In 1826 a "House of Reformation," on a similar plan, was established in Boston, and, in 1828, a "House of Refuge" in Philadelphia. Similar institutions have since been organized in New Orleans, Rochester, N. Y., Westboro', Mass., Cincinnati, Providence, Pittsburg, West Meriden, Conn., St. Louis, Baltimore, and perhaps some other cities.

The distinguishing characteristics of these institutions are, that those committed to them have generally been arrested for crime, and have either been sentenced to the House of Refuge, in lieu of a sentence to jail or state prison, or have been sent to these institutions without sentence, in the hope of their reformation. They are supported, directly or indirectly, from the public treasury (the New York house, besides an appropriation of $40 per head from the state comptroller, received last year $8000 from the city treasury, over $5000 from the Board of Education for its schools, and about $7500 from theatre licenses). In most, or all of them, the children are employed in some branch of manufacture, or some mechanic art, for from five to eight hours per day, and receive from three to five hours' instruction in school. In all there is more or less religious and moral instruction imparted, having in view their permanent reformation from evil habits and practices. In all, or nearly all, they are confined at night in cell-like dormitories, into which they are securely locked, and their labor, during the day, is under strict supervision, and is generally farmed out to contractors. High walls and a strict police are mainly relied on to prevent escape, and the attempt to do so, or any act of insubordination, is usually punished with considerable though not perhaps unmerited severity. The managers generally possess and exercise the power of indenturing those children who, after a longer or shorter stay, seem to be reformed, even though the period of their sentence has not been completed. A considerable number who have been sent to the House of Refuge on complaint of their parents are, after a time, delivered to them on application; but a large proportion of these do not do well. Of the others, it is believed that from fifty to seventy-five per cent. reform, at least so far as to become quiet and law-abiding citizens. Of those who do not reform, some, after discharge at the end of their term, are soon recommitted; others are sent to sea, and perhaps amid the hardships of a sailor's life become reformed; others return to the vicious associations from which they were originally taken, and after a few months or years of crime, find their place among the inmates of the county or convict prisons, meet a violent death, or fill a drunkard's grave.

These institutions necessarily combine something of the character of a prison with that of the school, and while their main object is the reformation rather than the punishment of the young offender, they retain so many penal features that they are objects of dread and dislike to many parents and guardians whose children or wards would be materially benefited by their discipline.

This feature of their management has led

to the establishment of another class of reformatories which, though sometimes assuming similar names, are essentially different both in the character of their inmates and in the methods adopted for their reformation. These methods are indeed quite diverse in the institutions coming under this general head, and are to some extent the reflection of the differing views of those who have charge of them.

The subjects taken in charge by these reformatories are somewhat younger on the average than those of the houses of refuge; they are for the most part only guilty of vagrancy and the vicious habits of a street life, or at the worst, of petty pilferings and thefts; they have not been, in most instances, tried for any crime against the laws, or if they have, their tender age has justified the magistrate in withholding a sentence.

When admitted to the reformatory, which is usually done on a magistrate's warrant, they undergo a thorough ablution, and are clothed in plain, neat garments having no distinguishing mark, are well fed, and carefully taught and watched over, and the utmost pains are taken to eradicate their evil habits, and to make them feel that their teachers and those who have them in charge are their best friends and seek their good. Their past history is never alluded to, and is generally known only to the superintendent. In these establishments there are no dormitory cells, and severe punishment is seldom found necessary. The labor of the pupils is seldom regarded as a matter of much importance, though in some instances three, four, or five hours a day are spent in some light employment. From these institutions escapes are unfrequent, and in most cases the children form a strong attachment for their teachers. In some instances they are broken up into groups or families of twenty or thirty persons, each having its "house father" and mother, and its "elder brother," if the pupils are boys, and its matron or "mother," and elder sister or aunt, if they are girls. These officers teach them and perform the duties indicated by their titles in such a way as to supply, as far as possible, the place of those natural relations of whose judicious influence they are deprived. One of these reformatories is a ship, and the pupils are taught all the duties required of an able-bodied seaman, and the order and discipline are similar to those of the naval school ships. They are taught, in addition to ordinary common-school studies, navigation, and after a few months' instruction are in demand for the mercantile marine, where they not unfrequently are rapidly promoted.

In most of these institutions the pupils remain in the reformatory a shorter average period than those who are inmates of the houses of refuge. In the New York Juvenile Asylum, one of the most successful of these reformatories, they are usually indentured or discharged in six or twelve months. In the State Industrial School for Girls at Lancaster, Mass., comparatively few remain over a year. These institutions are usually supported by the large cities, though in a few instances they are state institutions. The labor of the children being of but little account, the expense per head per annum is somewhat greater than in the houses of refuge, but the number of reformations is also greater, and may with considerable certainty be estimated at from seventy-five to eighty-five per cent. Among these institutions we may name the "New York Juvenile Asylum," the "State Industrial School for Girls" at Lancaster, Mass., the "Massachusetts School Ship," the "Asylum and Farm School" at Thompson's Island, Boston, the "State Reform School" at Cape Elizabeth, Maine, the "Reform School" at Chicago, and the "State Reform Farm" at Lancaster, Ohio. In the last, which is the first attempt at the introduction of the family or group system for boys in this country, fruit culture is to be the principal employment of the inmates, and the term of residence will be longer than at most of the others.

In our large cities there is still another class of children for whom a preventive education is necessary; they are not criminal, they have not generally acquired vicious habits, but they are *morally endangered*. They are often orphans or half orphans, and frequently homeless; many of them are children of foreign parents of the lower classes, and have had no opportunities of education; some are the offspring of vicious or intemperate parents. The greater part of them obtain a precarious livelihood by begging, sweeping crossings, boot blacking, selling newspapers, statuettes, fruit, or small wares, or organ-grinding. They are all exposed to strong temptations to evil, and have acquired a kind of defiant independence from being driven so early to take care of themselves.

For these children it has been felt that some provision must be made to prevent

them from falling into vicious and criminal courses, and becoming depredators upon society, and to give them the opportunity of becoming good and intelligent citizens. The measures necessary to accomplish these results have been the subject of much discussion; and amid the experimenting which has been the result of this discussion, much good and some evil have been done. Industrial schools have been established, mainly for girls, in which reading and the elements of geography and arithmetic, vocal music, and the use of the needle in plain work, are taught; and the furnishing of one or two meals a day and plain clothing when needed, are made the inducements to attendance. For the newsboys and other young vendors of petty wares, a lodging house has been opened in New York city, and evening instruction given, the boys paying six cents each for their lodging. On the Sabbath a free dinner is provided for those who will attend and receive religious instructions; evening schools are also established, where those who are engaged in their little employments during the day, may receive intellectual and moral training.

In the worst quarters of New York and Philadelphia, missions and houses of industry have been founded, in which schools are kept through the week, much after the plan of the industrial schools already described, and where homeless forsaken children, and those whose parents are vicious and degraded, are clothed, boarded, instructed, and made to know the comforts of a home. It is obvious, however, that the greatest kindness which can be done to these children is to remove them from the influence of the temptations to which they have been exposed, and hence, most of these institutions send their children to homes in the country, after more or less preparatory training, as fast as good places can be found for them. In many cases, they are adopted by those in whose charge they are placed, and find in their foster parents more tender affection and care than they have ever known before. In other cases, they meet with less sympathy and love, and return to the great city and its temptations again.

In 1853, a "Children's Aid Society" was organized in New York city, mainly through the efforts of Mr. Charles L. Brace, one of whose principal objects is the location of this class of children in good homes at the West and elsewhere. Several of these societies have since been formed in other large cities. The original society at New York has the oversight of industrial schools, boys' meetings, the newsboys' lodging house, etc., and gathers from all quarters these morally endangered children, and sends them into the country in companies of forty or fifty; its agents having secured situations for them. About 800 are thus sent out annually.

Still another class of organizations intended for the benefit of these hapless children, though devoting its attention mainly to two classes of them, the very young children, infants and children under ten years, and girls of thirteen years and over, who are homeless and out of employment, are the Homes for the Friendless, of which there are now twelve in the United States. The first of these originated with the American Female Guardian Society, in New York, and was the result of the efforts of the directors of that society to rescue these classes from ruin. It assumed its present form in 1847, and has had nearly 10,000 inmates; 683 were received as members of its schools and workrooms in 1859, and 674 were employed in the home workrooms, and furnished with situations; 640 girls were taught in its industrial schools, and 560 families aided.

These institutions are all of them maintained principally by private contributions, though most of them, in the large cities, receive school moneys, to aid in sustaining their schools, from the city or state, and some of them receive occasional grants from the state or city treasuries.

It is impossible to ascertain, with any considerable certainty, the exact percentage of children from these institutions, who eventually turn out well. In most of them, the failures are the exceptions, and not very numerous exceptions. The Home for the Friendless in New York city keeps up a correspondence relative to each child sent out, until their majority, unless they die before that time. This correspondence demonstrates that full 90 per cent. grow up virtuous and well behaved. This percentage is larger than can safely be predicated of the other institutions, inasmuch as the children are for the most part received into the home at a very early age, and have not acquired the evil habits of those who are older, before coming under the influence of these charities. In the Children's Aid So-

cieties, Houses of Industry, etc., the percentage reformed is large, but not definitely ascertainable.

There is still another class of reformatory institutions not intended for children, but for that unfortunate class of women who, having led lives of unchastity, have become penitent for their sins and desire to return to the paths of virtue. This department of reform has been less actively promoted here than in Europe, and especially in Great Britain, but there are in most of our large cities Magdalen Asylums, or institutions otherwise designated, but intended for this class. New York has one of these asylums, Boston two, and Philadelphia three, one of which, the Rosine Asylum, founded in 1847, is a very active and useful organization.

The number of Houses of Refuge, or institutions of that class, is fourteen. The cost of their buildings and grounds is about $2,050,000, and the annual cost of their maintenance not far from $340,000.

Of the second class there are seven; the cost of buildings and grounds is not far from $450,000, and the annual expenses of maintenance about $130,000.

The number of institutions of the third class cannot be definitely ascertained. Few or none of them are established or entirely maintained by the state or city governments, and some are altogether private enterprises. There are fifteen of them in the city of New York alone, and two or three in Brooklyn, five or six in Philadelphia, and a considerable number in smaller cities and towns. Some of these occupy leased buildings, others own their edifices.

The buildings and grounds of the New York Home for the Friendless cost nearly $60,000, and of the Five Points House of Industry, about $40,000. The annual expenses of seven of the more important of the preventive and reformatory institutions in New York city, were about $114,000. It would probably be safe to estimate the total permanent investment of all these organizations at not less than three millions of dollars, which we are satisfied is below the reality, and the current annual expenditure at not less than $750,000.

That these institutions have not yet attained to their highest degree of efficiency, and that they are not fully adequate to the reformation and preventive education of the vast number of morally endangered vagrant and criminal children of the country, is undoubtedly true; but among the evidences of national progress in our country since the commencement of its independent existence, there is none which reflects greater credit upon its philanthropy than the establishment and maintenance of so many institutions of reformation and preventive education.

TABLE OF EDUCATIONAL STATISTICS OF THE UNITED STATES IN 1850.

STATES AND TERRITORIES.	Colleges.					Academies.					Public Schools.					White Persons.		
				Annual Income.					Annual Income.					Annual Income.				
	Number.	Teachers.	Pupils.	Returned.	Estimated.	Number.	Teachers.	Pupils.	Returned.	Estimated.	Number.	Teachers.	Pupils.	Returned.	Estimated.	Returned as in Colleges, Academies, and Public Schools.	Attend'g School as returned by Families.	Persons over 20 years who cannot read or write.
Alabama	5	55	567	$41,255	$48,530	166	380	8,290	$164,165	$224,279	1,152	1,195	28,380	$315,602	$390,989	37,237	62,778	33,757
Arkansas	3	14	150	3,100	3,100	90	126	2,407	27,937	34,308	353	355	8,493	43,763	68,411	11,050	23,350	16,819
California						6	5	170	14,270	20,392	2	2	49	3,600	14,700	219	992	5,148
Columbia, Dist. of	2	36	218	24,000	24,000	47	126	2,333	84,040	84,040	22	34	2,169	14,232	14,232	4,720	6,103	1,457
Connecticut	4	56	738	53,639	53,639	202	329	6,996	145,967	152,120	1,656	1,787	71,260	231,220	231,220	79,003	82,433	4,739
Delaware	2	16	144	17,200	17,200	65	94	2,011	47,832	53,498	194	214	8,970	43,861	43,861	11,125	14,216	4,536
Florida						34	49	1,251	13,089	22,742	69	73	1,878	22,386	31,777	3,129	4,746	3,859
Georgia	13	84	1,535	105,430	105,430	219	318	9,059	108,983	184,849	1,251	1,265	32,705	182,231	190,235	43,209	77,015	41,200
Illinois	6	35	442	13,300	15,389	83	160	4,244	40,488	47,678	4,052	4,248	125,725	349,712	356,416	130,411	181,969	40,054
Indiana	11	61	1,069	43,350	43,350	131	233	6,185	63,520	73,219	4,222	4,860	161,500	316,955	329,095	168,754	220,034	70,540
Iowa	2	4	100	2,000	2,000	33	46	1,111	7,980	11,180	740	828	29,556	51,492	52,620	30,767	35,456	8,120
Kentucky	15	100	1,773	131,461	131,461	330	600	12,742	252,617	306,507	2,234	2,306	71,429	211,852	215,068	85,914	130,917	66,687
Louisiana	6	41	629	85,750	85,750	143	354	5,328	193,077	283,003	664	822	25,046	349,679	362,412	31,003	32,838	21,221
Maine	3	21	282	14,000	17,784	131	232	6,648	51,187	64,966	4,042	5,540	192,815	315,436	318,597	199,745	185,941	6,147
Maryland	13	98	1,127	113,714	122,403	223	503	10,787	232,341	239,083	898	986	33,111	218,836	221,817	45,025	60,447	20,815
Massachusetts	6	85	1,043	107,901	121,929	403	521	13,436	310,177	354,521	3,679	4,443	176,475	1,006,795	1,010,346	190,924	220,781	27,539
Michigan	3	22	308	14,000	14,000	37	71	1,619	24,947	31,953	2,714	3,231	110,455	167,806	168,764	112,382	105,754	7,912
Mississippi	11	45	862	42,400	47,652	171	297	6,628	73,717	144,732	782	826	18,746	254,159	267,824	26,236	48,803	13,405
Missouri	9	65	1,009	79,528	88,277	204	368	8,829	143,171	183,403	1,570	1,620	51,754	160,770	168,961	61,592	95,245	36,281
New Hampshire	1	18	273	11,000	11,000	107	183	5,321	43,202	52,591	2,381	3,012	75,643	166,944	167,938	81,237	88,148	2,957
New Jersey	4	49	470	79,700	79,700	225	453	9,844	227,588	300,242	1,473	1,574	77,930	216,672	220,340	88,244	89,775	14,248
New York	18	174	2,673	148,258	217,267	887	3,136	49,328	810,332	1,015,249	11,580	13,965	675,221	1,472,657	1,486,423	727,222	687,874	91,293
North Carolina	5	29	513	40,700	40,700	272	403	7,822	167,648	222,695	2,657	2,730	104,095	158,564	158,564	112,430	100,591	73,566
Ohio	26	180	3,621	125,792	145,292	206	474	15,052	149,392	201,077	11,661	12,886	484,153	743,074	751,576	502,826	512,278	61,030
Pennsylvania	22	134	3,520	286,805	318,070	524	914	23,751	467,843	570,501	9,061	10,024	413,706	1,348,249	1,362,949	440,977	498,111	66,928
Rhode Island	1	12	283	23,000	23,000	46	75	1,601	32,748	37,423	416	518	23,130	100,481	100,481	25,014	28,359	3,340
South Carolina	8	43	720	104,790	104,790	202	333	7,467	205,489	205,489	724	739	17,838	200,600	200,600	26,025	40,293	15,684
Tennessee	18	83	1,705	65,307	67,689	264	404	9,928	155,902	175,926	2,680	2,819	104,117	198,518	200,253	115,750	146,430	77,522
Texas	2	7	165	1,000	4,125	97	137	3,389	39,384	79,732	349	360	7,946	44,088	94,554	11,500	19,369	10,525
Vermont	5	30	464	21,558	21,558	118	257	6,864	48,935	56,159	2,731	4,173	93,457	176,111	179,181	100,785	92,152	6,189
Virginia	12	73	1,343	159,790	162,574	317	547	9,068	234,372	351,907	2,930	2,997	67,353	314,625	341,279	77,764	109,711	77,005
Wisconsin	2	8	75	4,700	4,700	58	86	2,723	18,796	19,899	1,423	1,529	58,817	113,133	113,874	61,615	56,354	6,361
Territories. Minnesota						1	1	12	140							12	207	649
Territories. N. Mexico						1	1	40								40	466	25,085
Territories. Oregon						29	44	842	20,888	24,495	3	4	80	3,927	3,927	922	1,875	157
Territories. Utah	1					13			2,050	2,221	13			11,512	11,512		2,035	153
Total	249	1,678	27,821	1,964,428	2,142,359	6,085	12,260	263,096	4,644,214	5,631,179	89,978	91,966	3,354,011	9,529,542	9,680,793	3,644,928	4,063,046	962,898

CHRONOLOGICAL TABLE OF AMERICAN COLLEGES.

Corporate name.	Location.	Date.	No. of Professors.	No. of Students.	Vols. in Library.
Harvard University	Cambridge, Mass.	1636	24	420	125,000
William and Mary	Williamsburg, Va.	1693	6	60	53,000
Yale	New Haven, Ct	1700	21	523	67,000
College of New Jersey	Princeton, N. J.	1746	19	314	24,000
University of Pennsylvania	Philadelphia, Pa.	1749	12	129	5,100
Columbia	New York, N. Y.	1754	12	173	14,000
Brown University	Providence, R. I.	1764	10	212	35,000
Dartmouth	Hanover, N. H.	1769	16	304	33,693
Rutgers	New Brunswick, N. J.	1770	6	110	12,000
Washington	Lexington, Va.	1781	8	75	6,200
Dickinson	Carlisle, Pa.	1783	8	134	23,493
Washington	Chestertown, Md.	1783	5	70	1,200
St. John's	Annapolis, Md.	1784	6	115	8,000
Franklin	Athens, Ga.	1785	10	113	18,250
Charleston	Charleston, S. C.	1785	6	37	5,000
University of North Carolina	Chapel Hill, N. C.	1789	15	450	21,000
Hampden-Sidney	Prince Edward Co., Va.	1789	5	128	7,000
University of Vermont	Burlington, Vt.	1791	7	104	13,000
Bowdoin	Brunswick, Me.	1792	9	219	27,048
Georgetown	Georgetown, D. C.	1792	25	260	36,000
Williams	Williamstown, Mass.	1793	11	240	19,700
Washington	Washington Co., La.	1795	3	22	1,800
Union	Schenectady, N. Y.	1795	15	320	15,500
Greenville	Greenville, Tenn.	1796	2	20	3,500
Transylvania	Lexington, Ky	1798	8	..	14,000
Middlebury	Middlebury, Vt.	1800	6	103	13,500
South Carolina	Columbia, S. C.	1801	8	202	24,000
Jefferson	Canonsburg, Pa.	1802	10	215	10,000
Ohio University	Athens, Ohio	1804	6	154	5,000
East Tennessee	Knoxville, Tenn	1806	..	..	8,000
University of Nashville	Nashville, Tenn.	1806	8	104	9,666
Washington	Washington, Pa.	1806	6	103	3,900
Miami University	Oxford, Ohio	1809	8	121	8,100
Hamilton	Clinton, N. Y.	1812	9	131	12,500
Alleghany	Meadville, Pa.	1817	6	104	9,600
St. Joseph's	Bardstown, Ky.	1819	15	60	8,800
University of Virginia	Charlottesville, Va.	1819	14	417	30,000
Waterville	Waterville, Me.	1820	6	117	10,000
Amherst	Amherst, Mass.	1821	15	242	26,000
Columbian	Washington, D. C.	1821	8	66	7,500
Trinity	Hartford, Ct.	1823	9	56	13,500
Centre	Danville, Ky.	1823	5	180	5,600
Franklin	New Athens, Ohio	1824	4	85	2,000
Hobart Free College	Geneva, N. Y.	1825	7	108	13,550
Western Reserve	Hudson, Ohio	1826	7	48	8,451
Kenyon	Gambier, Ohio	1826	10	129	13,384
Georgetown	Georgetown, Ky.	1829	8	171	7,000
Indiana State University	Bloomington, Ind.	1830	6	115	2,200
Florence Wesleyan	Florence, Ala	1830	5	112	2,000
Mount St. Mary's	Emmetsburg, Md.	1830	24	126	4,000
Illinois	Jacksonville, Ill.	1830	7	70	3,660
Wesleyan University	Middletown, Ct.	1831	7	140	13,000
University of Alabama	Tuscaloosa, Ala.	1831	9	120	12,000
University of City of New York	New York, N. Y.	1831	16	138	4,300
Lafayette	Easton, Pa.	1832	6	100	4,000
Hanover	South Hanover, Ind	1832	5	45	5,400
Dolbear's Commercial	New Orleans, La.	1832	10	375	..
Randolph-Macon	Boydon, Va.	1832	6	130	8,000
St. Louis University	St. Louis, Mo.	1832	18	134	22,000
Denison	Granville, O.	1832	7	73	5,000
Delaware	Newark, Del.	1833	6	50	10,000
Wabash	Crawfordsville, Ind.	1833	7	40	9,600

CHRONOLOGICAL TABLE OF AMERICAN COLLEGES.—*Continued.*

Corporate name.	Location.	Date.	No. of Professors.	No. of Students.	Vols. in Library.
Jackson	Columbia, Tenn.	1833	5	84	4,400
Oberlin	Oberlin, Ohio	1834	8	110	4,000
Norwich University	Norwich, Vt.	1834	4	80	1,650
Pennsylvania	Gettysburg, Pa.	1834	7	154	11,000
Shurtleff	Upper Alton, Ill.	1835	6	40	1,900
McKendree	Lebanon, Ill.	1835	6	99	5,500
Marietta	Marietta, Ohio	1835	6	56	16,000
Franklin and Marshall	Lancaster, Pa.	1836	6	96	19,000
University of Michigan	Ann Arbor, Mich.	1837	17	282	10,000
St. Charles	St. Charles, Mo.	1837	6	50	1,000
Knox	Galesburg, Ill.	1837	7	56	3,300
Emory	Oxford, Ga.	1837	6	126	1,700
Emory and Henry	Washington Co., Va.	1838	5	54	8,470
Oglethorpe	Milledgeville, Ga.	1838	5	100	4,500
Wake Forest	Forestville, N. C.	1838	5	76	5,000
University of State of Missouri	Columbia, Mo.	1839	10	102	3,500
Mercer University	Penfield, Ga.	1839	7	140	8,700
Wesleyan Female	Macon, Ga.	1839	11	188	2,450
Virginia Military Institute	Lexington, Va.	1839	13	150	4,000
Richmond	Richmond, Va.	1840	7	93	1,800
Davidson	Mecklenburg Co., N. C.	1840	7	112	5,600
Bethany	Bethany, Va.	1841	10	124	1,700
St. James's	Washington Co., Md.	1842	14	52	9,500
Holy Cross	Worcester, Mass.	1843	8	75	6,500
Masonic	Lexington, Mo.	1844	3	28	1,200
Franklin	Near Nashville, Tenn.	1844	6	106	3,500
Cumberland University	Lebanon, Tenn.	1844	11	165	4,000
Centenary	Jackson, La.	1845	11	103	5,200
Wittenberg	Springfield, Ohio	1845	5	59	6,200
Madison University	Hamilton, N. Y.	1846	9	145	7,457
St. John's	Fordham, N. Y.	1846	19	43	15,465
Kentucky Military Institute	Franklin Springs, Ky.	1846	9	154	3,000
Beloit	Beloit, Wis.	1847	8	69	3,500
St. Mary's	Wilmington, Del.	1847	7	..	5,500
St. Charles's	Ellicott's Mills, Md.	1848	8	104	450
Union	Murfreesboro', Tenn.	1848	6	150	4,500
University of Mississippi	Oxford, Miss.	1848	9	175	5,000
Howard	Marion, Ala.	1848	6	83	3,000
Lawrence University	Appleton, Wis.	1849	10	100	15,000
University of Louisiana	New Orleans, La.	1849	7	..	..
University, at Lewisburg	Lewisburg, Pa.	1850	6	55	4,000
Urbana University	Urbana, Ohio	1850	8	21	3,500
Carroll	Waukesha, Wis.	1850	5	20	926
University of Rochester	Rochester, N. Y.	1850	8	165	5,200
Madison	Sharon, Miss.	1851	5	102	450
Mississippi College	Clinton, Miss.	1851	7	50	3,750
Wisconsin University	Madison, Wis.	1851	7	30	1,900
Aranama	Goliad, Tex.	1852	3	75	1,800
Racine	Racine, Wis.	1852	6	17	1,700
Milwaukee Female	Milwaukee, Wis.	1852	4	36	729
Polytechnic	Philadelphia, Pa.	1853	8	58	..
Antioch	Yellow Springs, Ohio	1853	12	98	4,200
Tufts	Medford, Mass.	1854	5	54	8,000
Ohio Wesleyan University	Delaware, Ohio	1854	8	147	10,450
Santa Clara	Near San Jose, Cal.	1855	..	..	..
Iowa State University	Iowa City, Iowa	1855	4	..	200
Iowa Wesleyan University	Mount Pleasant, Iowa	1855	9	..	..
Semple Broaddus	Centre Hill, Miss.	1856	4	75	..
Indiana Asbury University	Greencastle, Ind.	1857	8	100	10,000
Kentucky	Harrodsburg, Ky.	1858	8	156	1,600
University of Chicago	Chicago, Ill.	1860	9	20	2,000

THEOLOGICAL SCHOOLS.

Name.	Place.	Denomination.	Commenced operations.	No. Professors.	Students near 1859–1860.	Number educated.	Volumes in Library.
Th. Sem. Dutch Ref. Church	N. Brunswick, N. J.	Dutch Ref.	1784	3	50	179	7,000
St. Mary's Seminary	Baltimore, Md.	Rom. Catholic.	1791	6	27	..	10,000
Theological School	Canonsburg, Pa.	Asso. Church.	1792	2	33	147	2,000
Theological Seminary	Andover, Mass.	Congregation.	1807	5	110	1,206	21,259
Theol. Sem. Presbyt. Church	Princeton, N. J.	Presbyterian.	1812	5	153	1,626	11,000
Bangor Theological Seminary	Bangor, Me.	Congregation.	1816	4	40	330	10,000
Divinity School, Harv. Univ.	Cambridge, Mass.	Cong. Unit.	1816	2	17	295	8,700
Hartwick Seminary	Hartwick, N. Y.	Lutheran.	1816	2	5	52	1,250
Georgetown College	Georgetown, D. C.	Rom. Catholic.	1816	3	12	..	2,000
Theol. Inst. Episc. Church	New York, N. Y.	Prot. Episcop.	1817	5	58	430	11,963
Hamilton Theol. Seminary	Hamilton, N. Y.	Baptist	1820	3	24	262	7,500
Theol. Sem. of Auburn	Auburn, N. Y.	Presbyterian.	1821	4	30	580	6,000
Southwest Theol. Seminary	Maryville, Tenn.	Presbyterian.	1821	2	24	90	6,000
Theol. Dep. Yale College	New Haven, Conn.	Congregation.	1822	5	27	680	..
Epis. Theol. School of Virginia	Fairfax Co., Va.	Prot. Episcop.	1822	4	47	356	7,500
Union Theological Seminary	Prince Ed. Co., Va.	Presbyterian.	1824	3	20	175	4,000
N. Hampton Theol. Seminary	New Hampton, N. H.	Baptist	1825	2	36	..	2,000
Theological Institution	Newton, Mass.	Baptist	1825	4	33	201	5,500
Wittenberg Theol. Seminary	Gettysburg, Pa.	Evang. Luth.	1825	3	25	250	10,000
German Reformed	Mercersburg, Pa.	Germ. Ref. Ch.	1825	2	18	121	6,000
Furman Theol. Seminary	Fairfield Dist., S. C.	Baptist	1826	2	30	30	1,000
Theol. Dep. Kenyon College	Gambier, Ohio	Prot. Episcop.	1827	4	23	91	6,500
Theological Seminary	Pittsburg, Pa.	Asso. Ref.	1828	3	35	85	1,500
Theological Seminary	Columbia, S. C.	Presbyterian.	1828	4	42	249	17,260
Western Theol. Seminary	Alleghany, Pa.	Presbyterian.	1828	5	140	537	10,000
Theol. Dep. St. Louis Univ.	St. Louis, Mo.	Rom. Catholic.	1829	4	14	86	4,000
Lane Seminary	Cincinnati, Ohio.	Presbyterian.	1829	3	36	237	10,500
Theol. Dep. West. Res. College	Hudson, Ohio.	Presbyterian.	1830	3	14	..	79
Virginia Baptist Seminary	Richmond, Va.	Baptist	1832	3	67	..	1,000
Granville Theol. Department	Granville, Ohio.	Baptist	1832	2	8	..	500
New Albany Theol. Seminary	Hanover, Ind.	Presbyterian.	1832	3	15	156	4,000
Theol. Inst. of Connecticut	East Windsor, Conn.	Congregation.	1834	3	17	151	5,000
Gilmanton Theol. Seminary	Gilmanton, N. H.	Congregation.	1835	3	23	69	4,300
Theological Seminary	Lexington, S. C.	Lutheran.	1835	2	10	20	1,800
Oberlin Theol. Department	Oberlin, Ohio.	Congregation.	1835	3	24	157	500
Alton Theol. Seminary	Upper Alton, Ill.	Baptist	1835	.	..	..	..
Union Theological Seminary	New York, N. Y.	Presbyterian.	1836	5	106	211	18,000
Theol. Sem. Ass. Ref. Church	Newburg, N. Y.	Ass. Ref. Ch.	1836	1	11	143	3,200
Theol. Sem. Ass. Ref. Church	Oxford, Ohio	Asso. Ref.	1839	1	12	31	1,500
Nashotah Theol. Seminary	Nashotah, Wisc.	Prot. Episcop.	1841	8	49	46	3,000
Western Theol. School	Meadville, Pa.	Cong. Unit.	1844	4	17	60	8,000
Western Bapt. Theol. Institution	Georgetown, Ky.	Baptist	1845	2	12	180	500
Wittenberg	Springfield, Ohio	W. Lutheran.	1845	1	6	49	..
Theol. Sem. of Mercer Univ.	Penfield, Ga.	Baptist	1846	2	13	..	2,200
Meth. Gen. Bib. Institute	Concord, N. H.	Methodist	1847	3	40	..	2,000
Howard Theol. Institution	Marion, Ala.	Baptist	1848	1	6	..	1,000
Bibl. Dep't Ohio Wesl. Univ.	Delaware, Ohio	Methodist	1849	1	11	..	..
Rochester Theol. Seminary	Rochester, N. Y.	Baptist	1850	3	36	50	5,500
Danville Theol. Seminary	Danville, Ky.	Presbyterian.	1853	4	52	115	..
Theol. Dep. Lewisburg Univ.	Lewisburg, Pa.	Baptist	1855	2	12	20	..
Theol. School, Cumb. Univ.	Lebanon, Tenn.	Cumb. Presby.	1855	2	33	..	..

LAW SCHOOLS.

Name.	Place.	Founded.	Profess'rs.	Students 1859-60.	Graduates.	Vols. in Library.
William and Mary College	Williamsburg, Va.	1782	1	..	..	..
Dane Law School, H. Univ.	Cambridge, Mass.	1817	3	150	1,005	14,500
Law School, Yale College	New Haven, Conn.	1820	2	28	122	2,200
Law School, Univ. of Virginia	Charlottesville, Va.	1825	2	109	247	2,000
Law School, Cincinnati College	Cincinnati, Ohio.	1833	3	85	512	3,000
Indiana State University	Bloomington, Ind.	1840	1	18	78	..
North Carolina University	Chapel Hill, N. C.	1845	2	23	..	..
N. Y. State and National L. S.	Poughkeepsie, N. Y.	1845	4	119	..	3,000
Cumberland University	Lebanon, Tenn.	1847	3	188	79	500
University of Pennsylvania	Philadelphia, Pa.	1850	3	60	80	..
University of Albany	Albany, N. Y.	1851	3	129	85	State lib.
Indiana Asbury University	Greencastle, Ind.	1853	1	16	50	..
Maynard L. S. Hamilton College	Clinton, N. Y.	1853	1	9	36	500
University of Mississippi	Oxford, Miss.	1857	1	35	33	1,000
Kentucky Military Inst.	Franklin Springs	1858	1	20	..	..
Law School, Col. College	New York, N. Y.	1859	3	30	..	2,000
University of Michigan	Ann Arbor	1859	3	90	24	1,000
University of Louisiana	New Orleans, La.	..	3	..	..	..
University of Louisville	Louisville, Ky.	..	3	..	..	..

MEDICAL SCHOOLS.

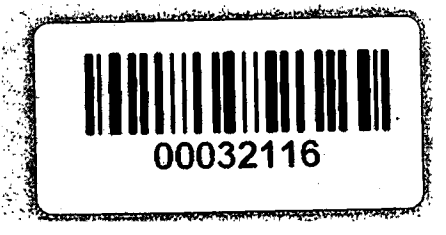
Name.	Place.	Founded.	Prof.	Stud'ts.	Graduates.	Lectures commence.
Med. Dep. Univ. Penn.	Philadelphia, Pa.	1765	9	453	7,100	Early in October.
Medical School, Harv. Univ.	Boston, Mass.	1782	6	104	1,125	1st Wedn. in Nov.
N. H. Medical School	Hanover, N. H.	1797	6	50	928	Thurs. after Com't.
Coll. Phys. & Surg., N. Y	New York, N. Y.	1807	6	219	852	1st Mon. in Nov.
Med. School, Univ. Md.	Baltimore, Md.	1807	6	100	909	October 31st.
Medical Inst. Yale College	New Haven, Ct.	1813	6	45	709	September.
Castleton Medical College	Castleton, Vt.	1818	7	104	555	4th Thurs. in Aug.
Med. Dep. Transylv. Univ.	Lexington, Ky.	1818	.	..	1,351	..
Medical College of Ohio	Cincinnati, Ohio.	1819	8	130	331	1st Mon. in Nov.
Medical School of Maine	Brunswick, Me.	1820	7	50	880	Early in February.
Med. Dep. Univ. Vt.	Burlington, Vt.	1821	6	49	163	Last of February.
Nat. Med. Col., Columbia Col.	Wash'gton, D. C.	1821	8	17	86	4th Mon. in Oct.
Berkshire Medical School	Pittsfield, Mass.	1823	5	103	473	1st Th. in Sept.
Jefferson Medical College	Philadelphia, Pa.	1824	7	514	2,036	1st Mon. in Nov.
Washington Med. College	Baltimore, Md.	1827	6	25	..	1st Mon. in Nov.
Med. School, Univ. Va.	Charlottesville.	1827	5	99	35	1st October.
Med. College of Georgia	Augusta, Ga.	1830	7	115	124	2d Mon. in Nov.
Med. Faculty, Univ. N. Y.	New York, N. Y.	1831	9	300	1,715	3d Mon. in Oct.
Med. Coll. State of S. C.	Charleston, S. C.	1833	8	158	..	2d Mon. in Nov.
Geneva Medical College	Geneva, N. Y.	1834	9	22	935	1st Wednes. in Oct.
Vermont Medical College	Woodstock, Vt.	1835	8	91	350	1st Th. in March.
Med. Dep. Univ. Louisiana	N. Orleans, La.	1835	9	333	..	3d Mon. in Nov.
St. Louis Medical College	St. Louis, Mo.	1836	10	128	..	1st Thurs. in Nov.
Med. Dep. Univ. Louisville	Louisville, Ky.	1837	.	..	53	..
Med. Dep. Hamp. Sid. Coll.	Richmond, Va.	1838	7	90	40	October 13.
Albany Medical College	Albany, N. Y.	1839	8	114	58	1st Tues. in Oct.
Med. Dep. Penn. College	Philadelphia, Pa.	1839	8	150	35	2d Tues. in Oct.
Rush Medical College	Chicago, Ill.	1842	6	70	16	1st Mon. in Nov.
Med. Dep. West. Reserve Coll.	Cleveland, Ohio.	1844	8	67	640	1st Wed. in Nov.
Med. Dep. of Missouri Univ.	Columbia, Mo.	1846	7	103	13	1st Mon. in Nov.
Starling Medical College	Columbus, Ohio.	1847	8	124	53	1st Mon. in Nov.
Med. Dep. State Univ.	Keokuk, Iowa.	1849	6	80	64	1st Mon. in Nov.
Med. Dep. Univ. Nashville	Nashville, Tenn.	1850	8	436	669	1st Mon. in Oct.
West. Coll. Homœpath. Med.	Cleveland, Ohio.	1850	8	62	17	1st Mon. in Nov.
University of Michigan	Ann Arbor.	1850	9	164	305	1st Mon. in Oct.
Med. Dep. Georgetown Coll.	Wash'gton, D. C.	1851	8	36	10	4th Mon. in Oct.
Med. Dep. E. Tenn. Univ.	Knoxville, Tenn.	1856	8	..	..	October.
Med. Dep. State Univ.	Madison, Wisc.	1856	6	..	..	..
Philadelphia Coll. of Med.	Philadelphia, Pa.	..	7	75	250	..
Winchester Med. Coll.	Winchester, Va.	..	5	..	..	1st Mon. in Oct.

STATISTICS OF DEAF AND DUMB INSTITUTIONS IN THE UNITED STATES.—1860.

Name of Institution.	Location.	Date of opening.	Number of deaf-mute pupils.	State beneficiaries.	Cost of building and grounds.	Annual amount received from states.	Amount from paying pupils.	Ordinary current expenses.	Permanent funds.	Annual charge to paying pupils.	No. of instructors, including principal.	No. of D. M. Instructors.	No. of female teachers.	No. educated previous to 1860.	Remarks.
American Asylum for Deaf and Dumb.	Hartford, Ct..	1817	226	205	$ 75,000	$22,265	$2,100	38,288	$307,000	$100	19	5	6	1,243	
N. York Institution for Deaf and Dumb	N. York city.	1818	303	265	600,000	48,783	4,309	48,659	None.	150	16	7	2	1,153	
Pennsylvania " " " "	Philadelphia..	1820	218	182	120,000	22,722	2,227	25,000	None.	140	12	3	..	979	
Kentucky " " " "	Danville.....	1823	78	75	66,000	15,444	350	14,658	22,000	105	6	2	1	409	
Ohio " " " "	Columbus....	1829	159	156	35,000	20,000	400	20,000	None.	100	9	3	..	606	
Virginia Institution for Deaf, Dumb, and Blind.....	Staunton.....	1839	75	..	75,000	25,000	..	25,000	None.	130	6	3	1	130	
Indiana Institution for Deaf and Dumb	Indianapolis..	1844	182	182	132,000	28,250	..	30,000	Land.	100	10	5	2	291	
Tennessee " " " "	Knoxville....	1845	61	60	41,780	13,000	130	13,000	None.	130	5	2	1	16	
North Carolina Institution for Deaf, Dumb, and Blind.....	Raleigh.....	1845	68	..	..	8,000	..	..	None.	..	3	2	..	..	
Illinois Institution for Deaf and Dumb	Jacksonville..	1846	205	205	200,000	27,000	..	27,000	None.	100	10	4	1	100	
Georgia Asylum " " "	Cave Spring Floyd Co.	1846	29	29	18,500	8,000	1,750	8,500	None.	175	4	1	..	83	
South Carolina Asylum for Deaf, Dumb, and Blind.....	Cedar Spring.	1849	16	16	45,000	7,728	None.	7,728	None.	150	3	1	2	41	
Missouri Institution for Deaf and Dumb.....	Fulton.....	1851	80	75	55,400	10,800	..	11,750	None.	100	5	4	..	55	
Louisiana Institution for Deaf, Dumb, and Blind.....	Baton Rouge.	1852	56	..	200,000	17,600	..	14,590	None.	..	5	..	..	..	
Wisconsin Institution for Deaf and Dumb.....	Delavan.....	1852	70	68	67,000	11,000	200	11,200	None.	100	6	2	1	..	
Michigan Asylum for Deaf, Dumb, and Blind.....	Flint.....	1854	70	70	154,000	7,000	..	7,000	None.	100	4	2	..	..	Expenses for both departments.
Iowa Institution for Deaf and Dumb.	Iowa City ...	1855	50	50	Rent. build.	8,000	..	4,500	None.	140	4	2	..	..	
Mississippi " " " "	Jackson.....	1855	49	49	10,500	9,000	..	8,272	...	150	4	3	..	38	
Texas " " " "	Austin	1857	30	30	9,000	9,000	..	..	100,000 acr. state lands.	..	2	1	1	..	
Columbian Institution for Deaf, Dumb, and Blind.....	Washington D. C.....	1857	27	24	12,000	7,500	450	6,896	None.	150	5	1	1	..	6 blind pupils.
Alabama Institution for Deaf and Dumb.....	Talladega....	1858	24	18	20,000	5,000	840	5,000	None.	140	3	1	1	6	

GENERAL VIEW OF BLIND INSTITUTIONS IN THE UNITED STATES, 1860.

Name of Institution.	Location.	Cost, or estimated value of buildings and grounds.	Date of opening.	Number of pupils.	Annual amount received from states.	Annual current expenses.	Charge to paying pupils.	Number of instructors.	No. of blind instructors.	Number of graduates.	Remarks.
Perkins Institution and N. England Asylum.	Boston, Mass.	$100,000	1832	85	$17,000	$20,000	$200	6	3	405	30 graduates furnished work on premises.
New York Institution for the Blind	New York	300,000	1832	210	22,000	30,000	550	26	18	650	
Pennsylvania " " " "	Philadelphia	175,000	1833	157	26,850	30,000	200	16	8	258	A "Home" for infirm graduates, 16 inmates.
Ohio " " " "	Columbus	50,000	1837	120	16,500	16,500	120	9	2	250	
Virginia Institution for Deaf, Dumb, and Blind	Staunton	75,000	1839	42	25,000	28,000	130	9	..	125	
Kentucky Institution for Blind	Louisville	70,000	1842	50	9,000	9,000	140	4	1	75	
Tennessee Institution for Blind	Nashville	15,000	1844	36	7,620	7,642	200	5	3	..	
Indiana Institution for Blind	Indianapolis	100,000	1847	66	15,000	15,000	100	4	1	..	
Illinois Institution for Blind	Jacksonville	80,000	1849	65	12,000	12,000	100	4	0	67	
Wisconsin Institution for Blind	Janesville	60,000	1850	36	8,000	8,000	..	4	1	15	
Missouri Institution for Blind	St. Louis	45,000	1851	52	10,000	9,000	200	4	1	43	
Mississippi Institution for Blind	Jackson	11,000	1848	20	7,000	7,000	..	..	..	..	
Georgia Academy for Blind	Macon	66,000	1852	26	6,000	6,700	200	3	1	5	
Iowa Institution for Blind	Vinton	19,000	1853	23	5,000	5,000	..	3	..	..	
Louisiana Institution for Deaf, D., and Blind	Baton Rouge	128,000	1852	14	3,550	3,550	250	..	..	..	
Maryland Institution for Blind	Baltimore	35,000	1854	25	4,800	5,000	100	5	3	3	
Columbian Institution for Deaf, Dumb, and Blind	Washington, D. C.	12,000	1857	..	..	..	..	..	..	..	Only 6 blind pupils.
Michigan Asylum for Deaf, Dumb, and Blind	Flint	154,000	1854	25	7,000	7,000	100	3	..	..	
North Carolina Institution for Deaf, Dumb, and Blind	Raleigh	20,000	1848	18	12,000	12,500	175	3	..	..	
South Carolina Institution for Deaf, Dumb, and Blind	Cedar Spring	45,000	1855	17	7,728	7,728	150	2	1	..	
Arkansas Institute for the Blind	Arkadelphia	..	1859	10	..	..	..	..	..	..	
Texas Institute for Blind	Austin	Rented buildg's.	1856	..	..	..	..	..	..	..	100,000 acres of land granted by the state.
Alabama " " "	Mobile	..	..	..	..	..	..	..	..	..	
Institution for colored Deaf Mutes and Blind	Niagara Falls	..	1860	..	..	..	..	..	..	..	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